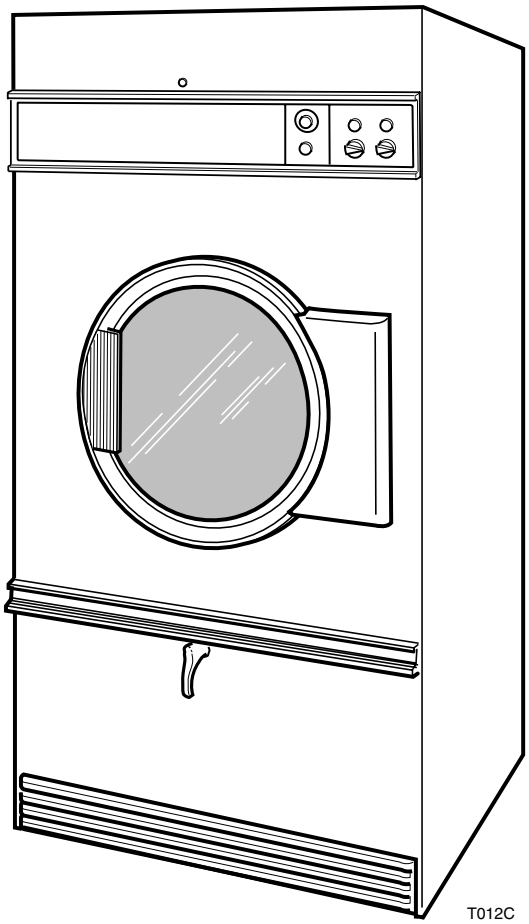
Drying Tumblers

50 Pound Capacity

Refer to Page 5 for Model Numbers

Service



T012C

Alliance Laundry Systems

www.comlaundry.com

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Section 1
Safety Information

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

DANGER

DANGER indicates the presence of a hazard that will cause severe personal injury, death, or substantial property damage if the danger is ignored.

WARNING

WARNING indicates the presence of a hazard that can cause severe personal injury, death, or substantial property damage if the warning is ignored.

CAUTION

CAUTION indicates the presence of a hazard that will or can cause minor personal injury or property damage if the caution is ignored.

Additional precautionary statements ("IMPORTANT" and "NOTE") are followed by specific instructions.

IMPORTANT: The word "IMPORTANT" is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

NOTE: The word "NOTE" is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

In the interest of safety, some general precautions relating to the operation of this machine follow.

WARNING

- **Failure to install, maintain and/or operate this product according to the manufacturer's instructions may result in conditions which can produce serious injury, death and/or property damage.**
- **Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and that you understand and have the skills to carry out.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury or death.**

W006R1

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IMPORTANT INFORMATION: During the lifetime of a tumbler, it may require service. The information contained in this manual was written and is intended for use by qualified service technicians who are familiar with the safety procedures required in the repair of a tumbler, and who are equipped with the proper tools and testing equipment.

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Never start the tumbler with any guards/ panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W240

WARNING

Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you, or the inexperienced person making such repairs, to the risk of serious injury, electrical shock or death.

W007

CAUTION

If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

W008

NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into this tumbler. These factors MUST BE supplied by the person(s) installing, maintaining or operating the tumbler.

Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

Locating An Authorized Service Person

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.

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Section 2
Introduction

Model Identification

Information in this manual is applicable to these models:

Gas		Steam/Thermal Oil	Electric
DCB50CG	JTB50CG	DCB50CSH	DCB50CE
DCB50EG	JTB50EG	DTB50CSH	DTB50CE
DTB50CG	SC50CG	DTB50CSL	JC50CE
DTB50EG	SC50EG	JC50CSH	JCB50CE
JC50CG	SCB50CG	JCB50CSH	JT37CE
JC50EG	SCB50EG	JT37CSH	JT50CE
JCB50CG	ST37CG	JT37CSL	JTB50CE
JCB50EG	ST37CGI	JT50CSH	SC50CE
JT37CG	ST37EG	JT50CSL	SCB50CE
JT37CGI	ST37EGI	JTB50CSH	ST37CE
JT37EG	ST50CGI	JTB50CSL	ST50CE
JT37EGI	ST50EGI	SC50CSH	STB50CE
JT50CG	STB50CG	SCB50CSH	TKD50CEMT
JT50CGI	STB50EG	ST37CSH	
JT50EG	TKD50CGMT	ST37CSL	
JT50EGI		ST50CSH	
		ST50CSL	
		STB50CSH	
		STB50CSL	

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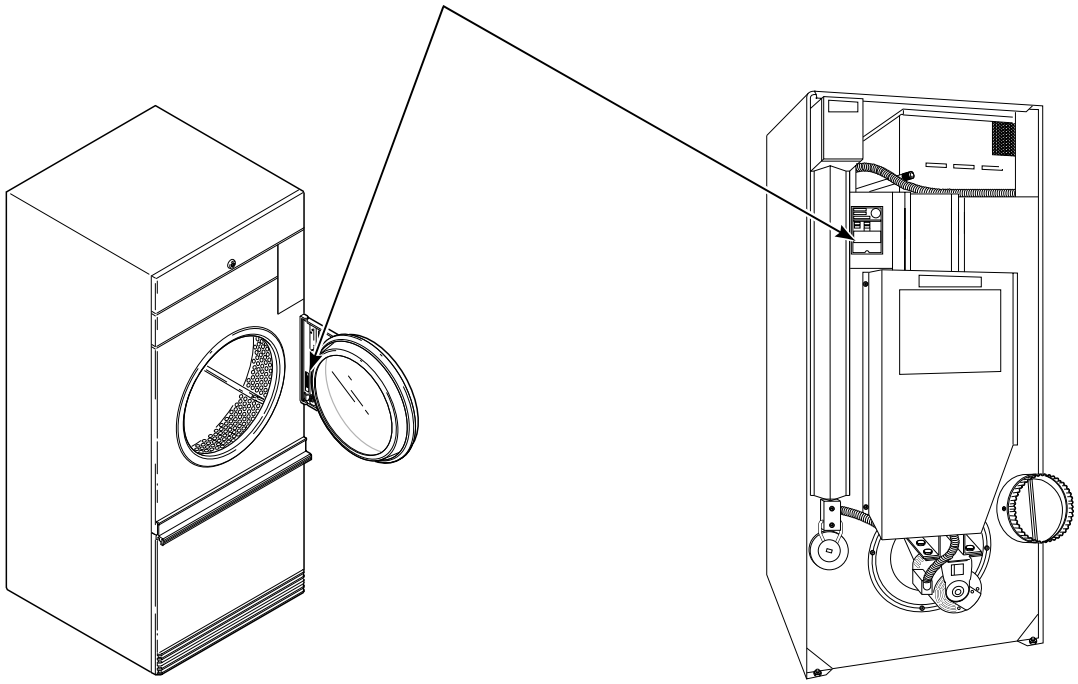
Customer Service

If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name and address of the nearest authorized parts distributor.

For technical assistance, call (920) 748-3121.

Serial Plate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on serial plate(s) as shown.



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Safety Warnings and Decals

SAFETY WARNINGS and decals have been provided in key locations to remind you of important precautions for the safe operation and maintenance of your tumbler. Please take the time to review these warnings before proceeding with service work.

All decals have been designed and applied to withstand washing and cleaning. Decals should be checked periodically to be sure they have not been damaged, removed, or painted. Refer to ***Parts Manual*** for ordering replacement decals.

Safety Precautions for Servicing Tumblers

- **Disconnect electrical service.**
- **Shut off supply gas valve before servicing gas components.**
- **Control panel and access panel MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Use a non-corrosive leak detection fluid to check all pipe connections for gas leaks. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!**
- **Chain/drive guard MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Belt guard MUST be reinstalled after inspection or servicing of tumbler is completed.**
- **Contactor box cover MUST be reinstalled after inspection or servicing of electric and/or reversing tumbler is completed.**
- **Loading door switch MUST be operational before putting tumbler into service.**
- **Junction box cover MUST be reinstalled after inspection or servicing of tumbler is completed.**

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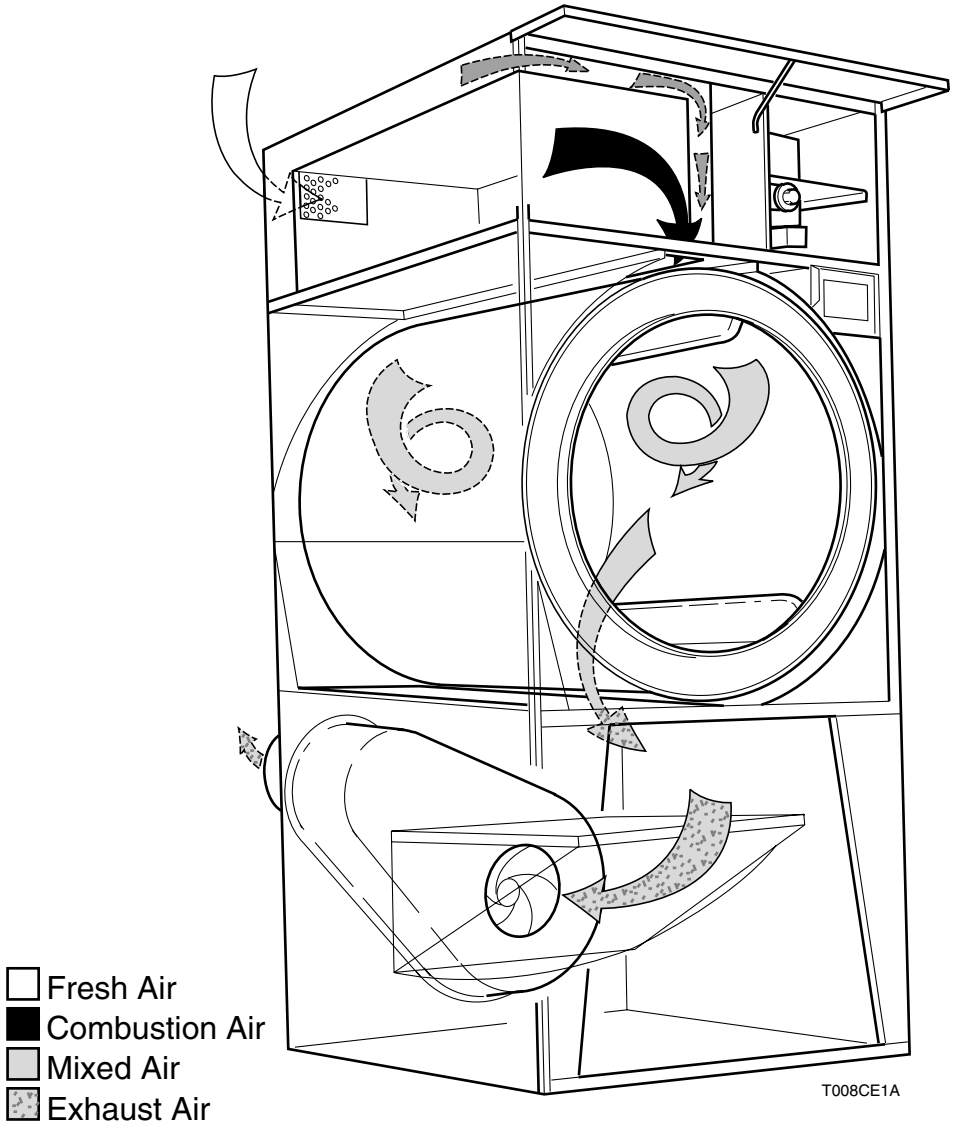
How A Tumbler Works



Standard Models

The tumbler uses heat, air and movement to dry loads of laundry.

When the motor is started, the exhaust fan pulls fresh air in through the air intake and over the heat source (burner flame for gas, heating element for electric, and coil for steam).

The heated air moves into the cylinder, where it is circulated through the laundry by the tumbling action of the cylinder.

The air then passes through the lint filter, exhaust fan, and is vented to the outdoors.

NOTE: In Energy Saver Models, some of the exhaust air is recirculated. Refer to page 9.

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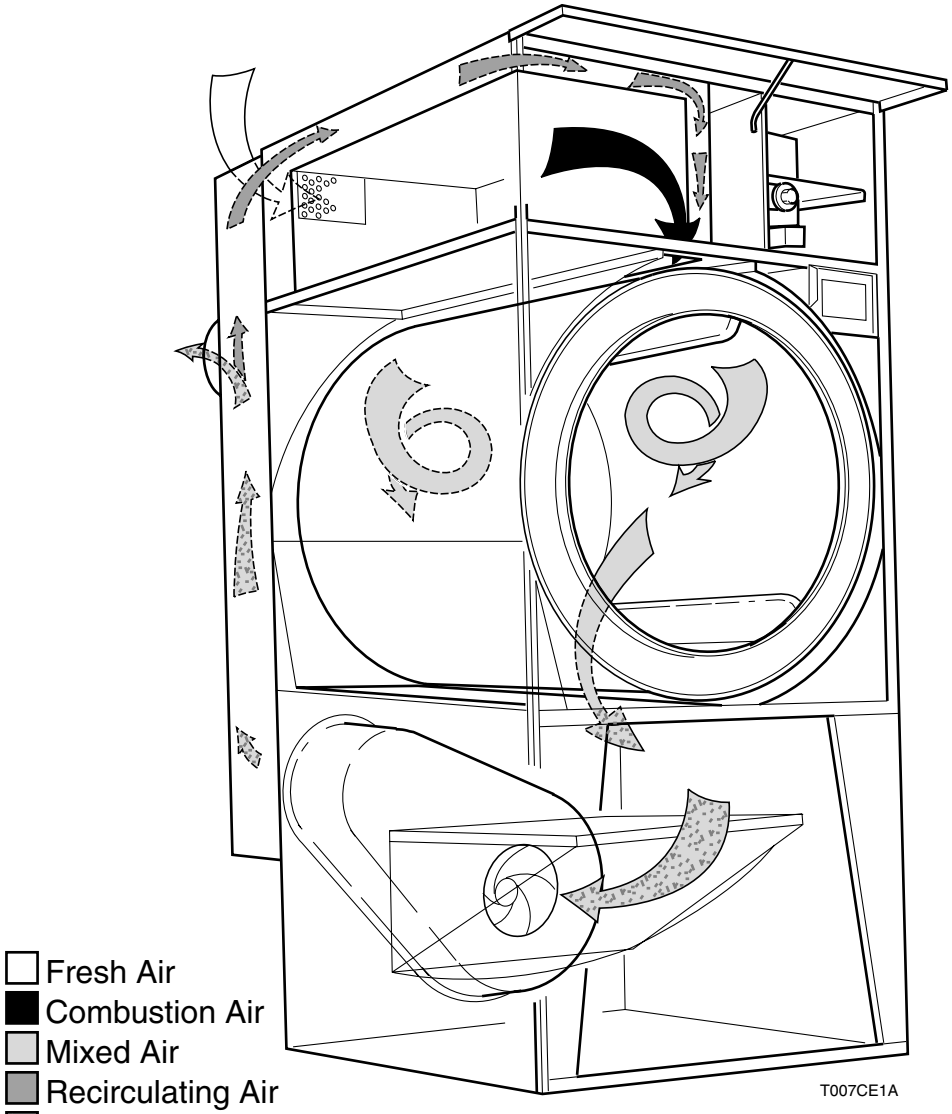

Energy Saver Models

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Section 3
Troubleshooting

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

IMPORTANT: Refer to appropriate wiring diagram for aid in testing tumbler components.

1. MOTOR DOES NOT START

POSSIBLE CAUSE	TO CORRECT
Electrical power off or fuses blown.	• Check power and fuses, replace fuses if necessary
Loading door not closed or inoperative door switch.	• Close door, or test switch and replace if inoperative.
Door switch improperly adjusted.	• Refer to ***Adjustment*** Section in this manual for door switch adjustment.
Trunnion shaft assembly binding in trunnion housing bearings.	• Replace trunnion housing bearings.
Start circuit not completed.	• Press start switch, or test switch and replace if inoperative.
Idler shaft binding in idler housing bearings.	• Replace bearings.
Inoperative motor.	• Have motor tested and replace if inoperative.
Non-Metered Models: Timer improperly set.	• Turn drying timer clockwise to desired setting.
Non-Metered Models: Inoperative timer or relay.	• Test timer and relay and replace if inoperative.
Metered Models: Improper coins inserted in accumulator.	• Check that proper coins are inserted.
Metered Models: Accumulator knob improperly set after coins were inserted.	• Turn knob clockwise to its full limit of travel.
Metered Models: Inoperative run switch (accumulator).	• Test run switch and replace if inoperative.
Broken, loose, or incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

2. MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Incorrect voltage.	• Refer to the ***Installation Manual*** (supplied with tumbler) for electrical requirements.
Clothes load too large.	• Remove part of load.
Clothes cylinder is binding.	• Check cylinder for binding. Refer to ***Adjustment*** Section for cylinder adjustment.
Inadequate wiring.	• Check with an electrician to ensure that wiring is adequate.
Inadequate make-up air.	• Refer to ***Installation Manual*** (supplied with tumbler) for make-up air requirements.
Poor housekeeping.	• Clean lint accumulation on and around the motor.
Broken, loose, or incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

3. MOTOR RUNS BUT CYLINDER DOES NOT TURN.

POSSIBLE CAUSE	TO CORRECT
Motor drive pulley loose.	• Tighten setscrews.
Sheave loose.	• Tighten setscrews.
Broken or loose belt.	• Replace or adjust belt.
Broken or loose drive chain or sprocket.	• Replace or adjust chain or sprocket.
Cylinder is binding.	• Check cylinder for binding. Refer to ***Adjustment*** Section for proper cylinder adjustment.

4. MOTOR DOES NOT STOP

POSSIBLE CAUSE	TO CORRECT
Inoperative door switch or switch is out-of-adjustment.	• Test switch and replace if inoperative. Refer to ***Adjustment*** Section for proper switch adjustment.
Non-Metered Models: Inoperative timer or relay.	• Test timer and relay and replace if inoperative.
Metered Models: Inoperative accumulator.	• Test accumulator and replace if inoperative.
Incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

5. HEATING ELEMENT DOES NOT HEAT OR BURNER DOES NOT IGNITE

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust system.	• Refer to the ***Installation Manual*** (Supplied with tumbler) for exhaust system requirements.
Blown fuses or tripped circuit breakers.	• Check fuses or circuit breakers.
Drying timer not selected or inoperative.	• Set drying timer or replace if necessary.
Inoperative control relay.	• Test relay and replace if inoperative.
Inoperative thermostat.	• Test thermostat and replace if inoperative.
Electric Models: Inoperative heating elements or contactors.	• Check heat contactors and elements. Replace if necessary.
Gas Models: Insufficient gas supply.	• Open partially closed gas shut-off valve, or correct low gas pressure. Check inlet pressure and compare to pressure specified on serial plate. If pressure cannot be obtained, contact gas supplier.
Gas Models: Incorrect orifices.	• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.
Gas Models: (Standing Pilot Ignition) Pilot is not lit.	• Refer to ***Installation Manual*** (supplied with tumbler) or INSTRUCTION plate on back of tumbler for LIGHTING AND SHUTTING DOWN STANDING PILOT.
Gas Models: (Standing Pilot Ignition) Inoperative gas valve reset assembly or thermocouple.	• Check and replace thermocouple or reset assembly if necessary.
Gas Models: Inoperative gas valve coils.	• Test coils and replace if inoperative.
Gas Models: (Automatic Ignition) Inoperative igniter.	• Test igniter and replace if inoperative.
Gas Models: (Automatic Ignition) Inoperative igniter control.	• Test igniter control and replace if inoperative.

(continued on next page)

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

5. HEATING ELEMENT DOES NOT HEAT OR BURNER DOES NOT IGNITE *(continued)*

POSSIBLE CAUSE	TO CORRECT
Gas Models: (Glow Bar Ignition) Inoperative igniter	• Test igniter and replace if inoperative.
Gas Models: (Glow Bar Ignition) Inoperative sensor.	• Test sensor and replace if inoperative.
Gas and Electric Models: Inoperative high limit thermostat.	• Test thermostat and replace if inoperative.
Gas and Electric Models: Inoperative airflow switch	• Clean lint compartment after every eight hour shift.
	• Check back draft damper for foreign objects, lint accumulation, or other causes that may prevent damper from opening.
	• Check ductwork for lint build-up. Refer to ***Installation Manual*** (supplied with tumbler) to ensure that ductwork and make-up air openings are sized properly.
	• Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen over in winter. NEVER install a screen over the exhaust outlet.
Gas and Electric Models: Airflow switch out of adjustment.	• Refer to ***Adjustment*** Section for airflow switch adjustment.
Lint door panel not closed properly.	• Open lint door panel, place lint door panel back on tumbler (ensuring a tight fit) then latch.
Broken, loose, or incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

6. PILOT DOES NOT IGNITE — GAS MODELS (STANDING PILOT IGNITION)

POSSIBLE CAUSE	TO CORRECT
Gas shut-off valve to tumbler is closed.	• Open valve.
Air is present in gas line.	• Purge air from gas line.
Incorrect pilot orifice.	• Tumbler is equipped for type of gas specified on serial plate. If pilot orifice is different from that specified on serial plate, obtain and install correct orifice.
Clogged pilot gas filter.	• Replace reset assembly.
Clogged pilot gas tube or pilot orifice.	• Clean or replace tube or orifice.
Inoperative thermocouple.	• Replace thermocouple.
Inoperative pilot assembly.	• Replace pilot assembly.

7. PILOT GOES OUT — GAS MODELS (STANDING PILOT IGNITION)

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust system.	• Refer to ***Installation Manual*** (supplied with tumbler) for exhaust system requirements.
Clogged lint screen.	• Remove and clean lint screen.
Improperly adjusted burner flame.	• Close air shutter slightly — A harsh roaring flame will draw pilot flame out.
Carbon accumulation on heated end of pilot thermocouple.	• Wipe carbon off end of thermocouple.
Incorrect pilot orifice.	• Tumbler is equipped for type of gas specified on serial plate. If pilot orifice is different from that specified on serial plate, obtain and install correct orifice.
Inoperative gas valve reset assembly or thermocouple.	• Check and replace reset assembly or thermocouple if necessary.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

8. IGNITER DOES NOT SHUT OFF AFTER GAS IGNITION — GAS BURNER (AUTOMATIC PILOT IGNITION)

POSSIBLE CAUSE	TO CORRECT
Tumbler not properly equipped for type of gas being used.	• Tumbler is equipped for type of gas specified on serial plate. If tumbler is equipped for gas different from that specified on serial plate, obtain the necessary components to correct the problem.
Insufficient gas supply.	• Open partially closed gas shut-off valve, or correct low gas pressure.
Improperly adjusted burner flame.	• Refer to ***Adjustment*** Section for recommended burner flame adjustment.
Pilot and electrode assembly incorrectly installed.	• Check assembly for correct alignment.
Inoperative igniter control.	• Test igniter control and replace if inoperative.
Incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

9. IGNITER DOES NOT GLOW (GAS SUPPLY SUFFICIENT) — GAS MODELS (GLOW-BAR IGNITION)

POSSIBLE CAUSE	TO CORRECT
Sensor failed with contacts open.	• Replace sensor.
Igniter is broken or open.	• Replace glow bar igniter.
No circuit for burner operation.	• Tumbler is not calling for heat, check the heat circuit to the ignition system.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

10. IGNITER GLOWS, SENSOR OPENS BUT NO IGNITION — GAS MODELS (Johnson Controls System)

POSSIBLE CAUSE	TO CORRECT
Insufficient gas supply.	• Check gas supply and pressure.
Gas flow but no ignition.	• Remove igniter and bracket and bend "L" shaped bracket (located on left side of stove) up or down. Reinstall igniter and bracket and check for 1/8 – 1/4 inch gap between bottom of igniter and top of main burner.
No gas flow through gas valve.	• Check primary valve coil and plunger. Replace coil if inoperative, or check for 120 Volts to control relay (PR1) coil contacts (A) and 120 Volts to control relay (PR1) contact number 7. If no voltage replace control relay (PR1) or check secondary valve coil and plunger operation replace coil if inoperative.

NOTE: To check the primary and secondary valve coil and plunger operation, place fingers on top of coils, cycle the machine and restart ignition circuit, you should feel the primary valve coil plunger open first, followed by glow bar heat up, followed by the sensor opening, and the secondary valve coil plunger opening. If plungers do not open, electrically check the coils. Check gas pressure to tumbler. Line pressure should be 7 ± 1/2 inches (Natural Gas) or 11 inches (L.P. Gas) water column pressure. Manifold pressure should be 3.5 inches (Natural Gas) or 11 inches (L.P. Gas) water column pressure.

11. IGNITER GLOWS, SENSOR OPENS BUT NO IGNITION — GAS MODELS (White Rodgers Glow-bar Ignition)

POSSIBLE CAUSE	TO CORRECT
Insufficient gas supply.	• Is manual shut-off valve in full open position? Check gas pressure.
Gas flow but no ignition.	• Gap between igniter and burner must be 1/8 to 1/4 inch.
No gas flow through gas valve.	• Check for 80 – 120 Volts between red and white wire on gas valve.
	• If correct voltage is present and redundant coil does not click open, replace complete gas valve.
	• If correct voltage is not present, replace diode logic board.
	• If correct voltage is present and redundant coil clicks open, check for 40 – 60 Volts across the purple wires on the main coil after the igniter cycles off.
	• If voltage is present and main coil does not stay open, replace main coil.
	• If no voltage is present, replace diode logic board.

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WARNING

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- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
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12. BURNER IGNITES AND GOES OUT REPEATEDLY — GAS MODELS (Glow-Bar Ignition)

POSSIBLE CAUSE	TO CORRECT
Burner heat not holding sensor contacts open.	• Replace sensor.
Insufficient gas pressure.	• Check gas supply and pressure. A low flame will not maintain radiation to sensor.
Burner ports plugged or dirty.	• Check burner tubes for build-up.
Improper or inadequate exhaust system or make-up air.	• Refer to ***Installation Manual*** (supplied with tumbler) for exhaust and make-up air requirements.
Cycles on high limit thermostat.	• Refer to *Paragraph 14*.
Improper orifices.	• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.

13. HEATING ELEMENT OR BURNER SHUTS-OFF PREMATURELY

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust and/or make-up air system.	• Refer to ***Installation Manual*** (supplied with tumbler) for exhaust and make-up air requirements.
Gas Models: Insufficient gas supply.	• Open partially closed gas shut-off valve, or correct low pressure.
Gas Models: Tumbler not properly equipped for type of gas used.	• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.
Gas Models: Improperly adjusted burner flame.	• Refer to ***Adjustment*** Section for burner flame adjustment.
Gas Models: (Glow-Bar Ignition) Sensor contact closing.	• Replace sensor.
Cycling off on high limit thermostat.	• Refer to *Paragraph 14*.
Broken, loose or incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

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14. HEATING ELEMENT OR BURNER REPEATEDLY CYCLES OFF ON HIGH LIMIT THERMOSTAT

POSSIBLE CAUSE	TO CORRECT
External exhaust system is longer than recommended or inadequate make-up air.	• Refer to ***Installation Manual*** (supplied with tumbler) for exhaust and make-up air requirements.
Clogged lint screen.	• Remove screen and clean. Lint screen and compartment should be cleaned after every eight hour shift.
Lint in tumbler ducts.	• Clean tumbler ducts.
Lint in external exhaust system.	• Disassemble exhaust system and clean.
High limit thermostat cycling at too low a temperature.	• Replace thermostat.
Lint door panel not closed properly.	• Open lint door panel — place lint door panel back on tumbler (ensuring a tight fit) then latch.

15. HEATING ELEMENT OR BURNER DOES NOT SHUT-OFF

POSSIBLE CAUSE	TO CORRECT
Gas Models: Impurities on gas valve seat, preventing valve from closing.	• Replace gas valve.
Inoperative drying timer, relay or contactor.	• Replace timer, relay or contactor.
Incorrect wiring.	• Refer to wiring diagram located on back of tumbler or in literature packet.

16. CLOTHES DO NOT DRY

POSSIBLE CAUSE	TO CORRECT
Heat source inoperative.	• Refer to *Paragraph 5*.
Too much water in articles being dried.	• Remove excess water.
Clothes load too large.	• Remove part of load.
Improper or inadequate exhaust system.	• Refer to ***Installation Manual*** (supplied with tumbler) for exhaust requirements.
Heat source shuts-off prematurely.	• Refer to *Paragraph 13*.
Drying timer improperly set.	• Set selector for higher setting.
Incorrect voltage.	• Refer to ***Installation Manual*** (supplied with tumbler) for electrical requirements.
Inadequate make-up air.	• Refer to ***Installation Manual*** (supplied with tumbler) for make-up air requirements.

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- **Disconnect electric power to the tumbler before servicing.**
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- **Close steam valve to steam tumbler before servicing.**
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W002

17. TUMBLER OVERHEATING

POSSIBLE CAUSE	TO CORRECT
Gas Models: Incorrect main burner orifices.	• Replace orifices.
Gas Models: Gas pressure too high.	• Gas pressure must be as specified on serial plate.
Inadequate make-up air.	• Refer to ***Installation Manual*** (supplied with tumbler) for make-up air requirements.
Lint accumulation.	• Remove lint.
Restricted or inadequate exhaust system.	• Remove obstruction or lint build-up from exhaust ductwork. Refer to the ***Installation Manual*** (supplied with tumbler) for exhaust system requirements.
Inoperative thermostat.	• Replace thermostat.

18. BURNERS NOT BURNING PROPERLY — GAS MODELS

POSSIBLE CAUSE	TO CORRECT
Burner air shutters incorrectly adjusted.	• Refer to ***Adjustment*** Section for proper flame adjustment.
Dirt in burners.	• Disassemble burners and blow out the dirt.
Gas pressure too high.	• Check serial plate on back of the tumbler for correct gas pressure.
Incorrect orifices.	• Tumbler is equipped for type of gas specified on serial plate. If orifices are different from that specified on serial plate, obtain and install proper orifices.
Restricted or blocked exhaust duct.	• Disassemble and clean exhaust system.
Airflow switch not functioning properly.	• Check adjustment and replace airflow switch if necessary.

19. CYLINDER DOOR OPENS DURING OPERATION

POSSIBLE CAUSE	TO CORRECT
Door strike improperly adjusted.	• Refer to ***Adjustment*** Section for door strike adjustment.
Tumbler improperly leveled.	• Refer to ***Adjustment*** Section for leveling leg adjustment.

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- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

20. TUMBLER RUNS BUT NO STEAM TO COILS — STEAM MODELS

POSSIBLE CAUSE	TO CORRECT
Valves closed.	• Check all valves in supply and return lines, make sure they are open.
Blocked steam trap.	• Remove trap and clean. Replace if inoperative.
Inoperative solenoid valve.	• Check operation of solenoid valve.
Incorrect installation of check valve.	• Check for inlet and outlet markings on check valve, and invert if necessary.
Clogged strainer.	• Remove strainer and clean.
Inoperative timer or thermostat	• Test timer or thermostat. Replace if inoperative.

21. WATER IN STEAM LINE — STEAM MODELS

POSSIBLE CAUSE	TO CORRECT
Incorrect installation of steam piping.	• Refer to ***Installation Manual*** (supplied with tumbler) for steam requirements.
Trap functioning improperly.	• Check trap for size and capacity. If trap is dirty or sluggish clean thoroughly or replace. Check return line for high back pressure.

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- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
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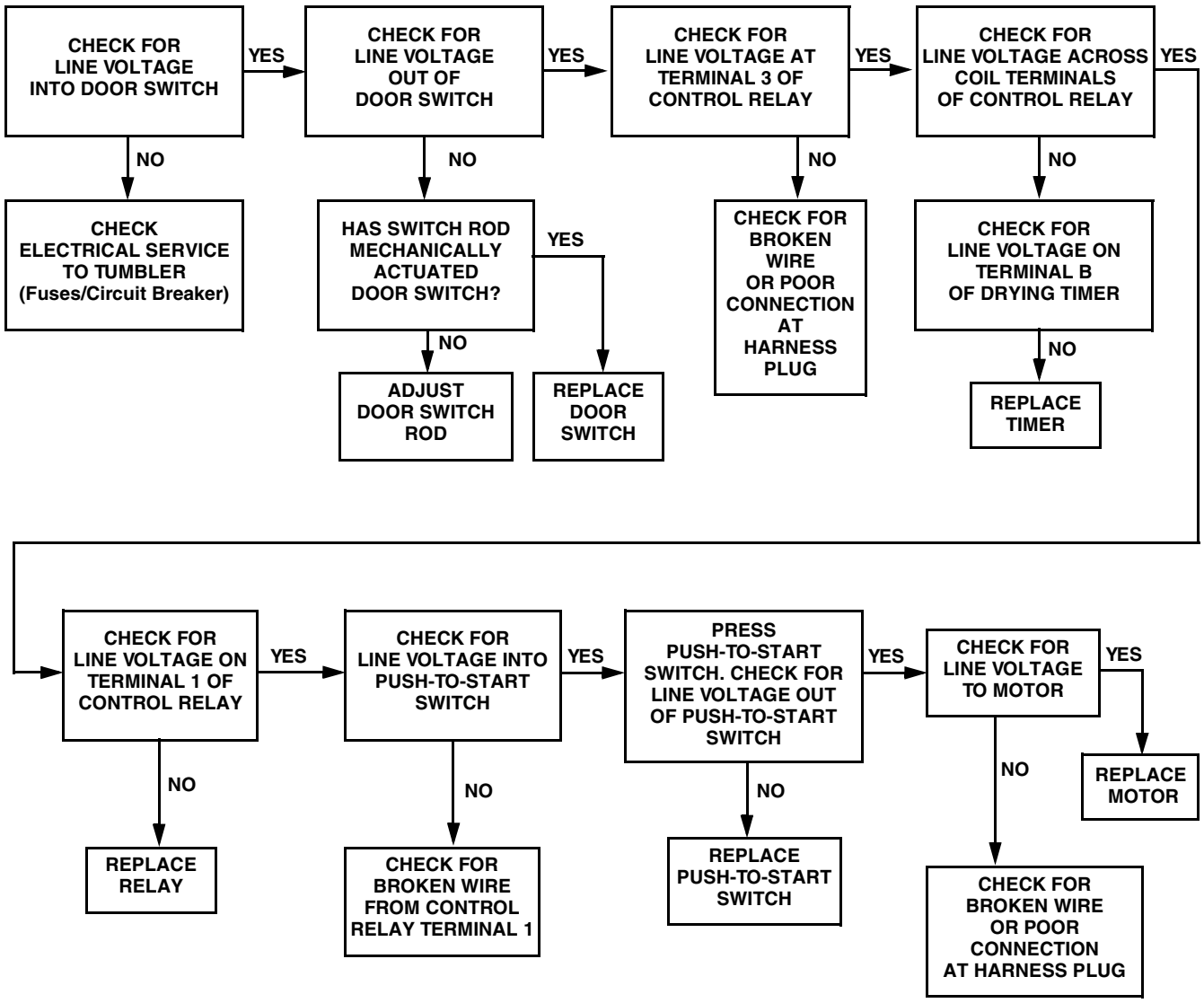
W002

22. TUMBLER WILL NOT START, TIME ON DRYING TIMER, DOOR CLOSED

MANUAL TIMER MODELS


CHECK FOR LINE VOLTAGE INTO DOOR SWITCH
YES
CHECK FOR LINE VOLTAGE OUT OF DOOR SWITCH
YES
CHECK FOR LINE VOLTAGE AT TERMINAL 3 OF CONTROL RELAY
YES
CHECK FOR LINE VOLTAGE ACROSS COIL TERMINALS OF CONTROL RELAY
YES
NO
CHECK ELECTRICAL SERVICE TO TUMBLER (Fuses/Circuit Breaker)
NO
HAS SWITCH ROD MECHANICALLY ACTUATED DOOR SWITCH?
YES
NO
ADJUST DOOR SWITCH ROD
REPLACE DOOR SWITCH
NO
CHECK FOR BROKEN WIRE OR POOR CONNECTION AT HARNESS PLUG
NO
CHECK FOR LINE VOLTAGE ON TERMINAL B OF DRYING TIMER
NO
REPLACE TIMER
CHECK FOR LINE VOLTAGE ON TERMINAL 1 OF CONTROL RELAY
YES
CHECK FOR LINE VOLTAGE INTO PUSH-TO-START SWITCH
YES
PRESS PUSH-TO-START SWITCH. CHECK FOR LINE VOLTAGE OUT OF PUSH-TO-START SWITCH
YES
CHECK FOR LINE VOLTAGE TO MOTOR
YES
NO
REPLACE RELAY
NO
CHECK FOR BROKEN WIRE FROM CONTROL RELAY TERMINAL 1
NO
REPLACE PUSH-TO-START SWITCH
NO
CHECK FOR BROKEN WIRE OR POOR CONNECTION AT HARNESS PLUG
REPLACE MOTOR

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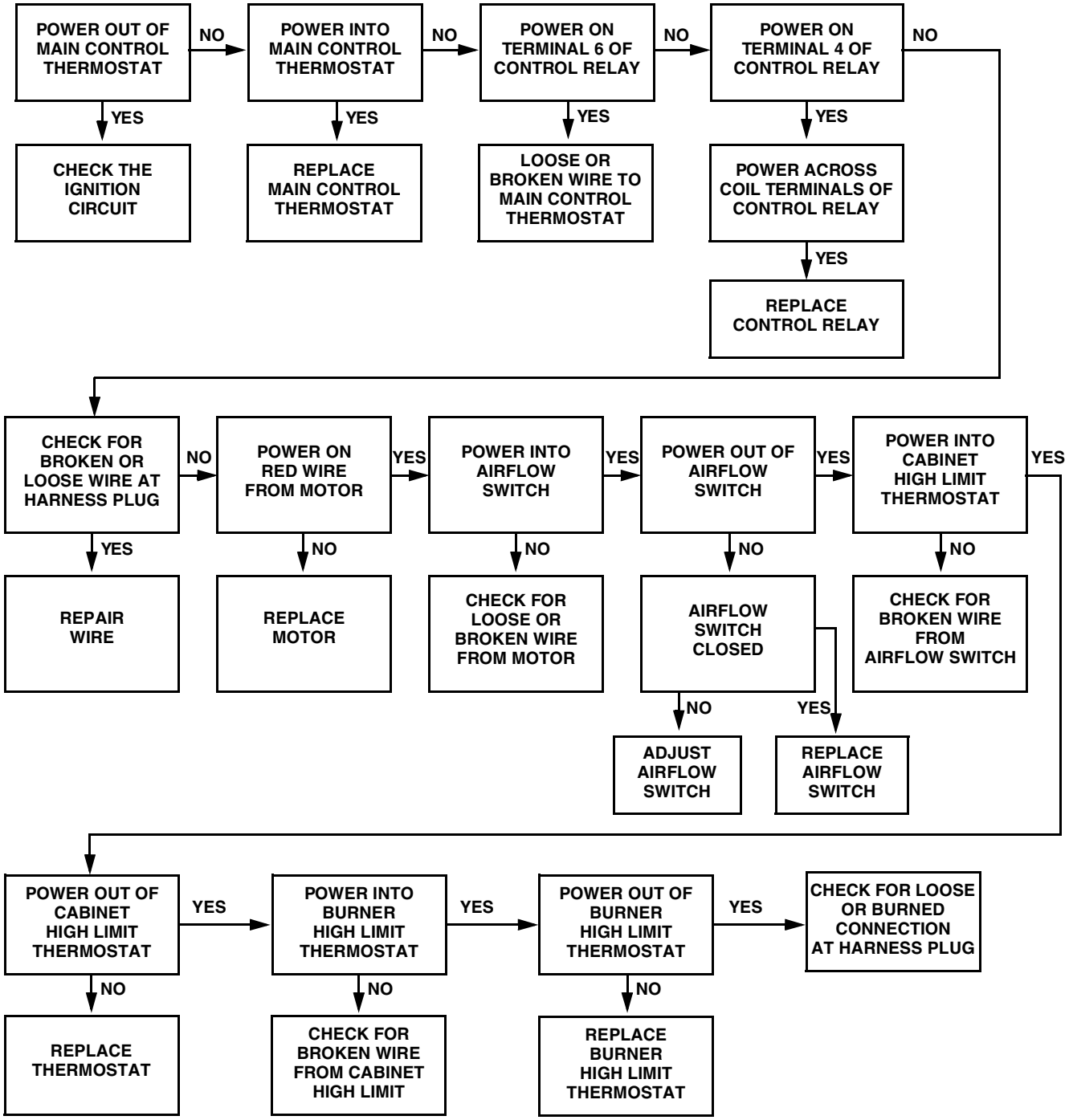
To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

23. MOTOR RUNS, TIME ON DRYING TIMER BUT NO HEAT



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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
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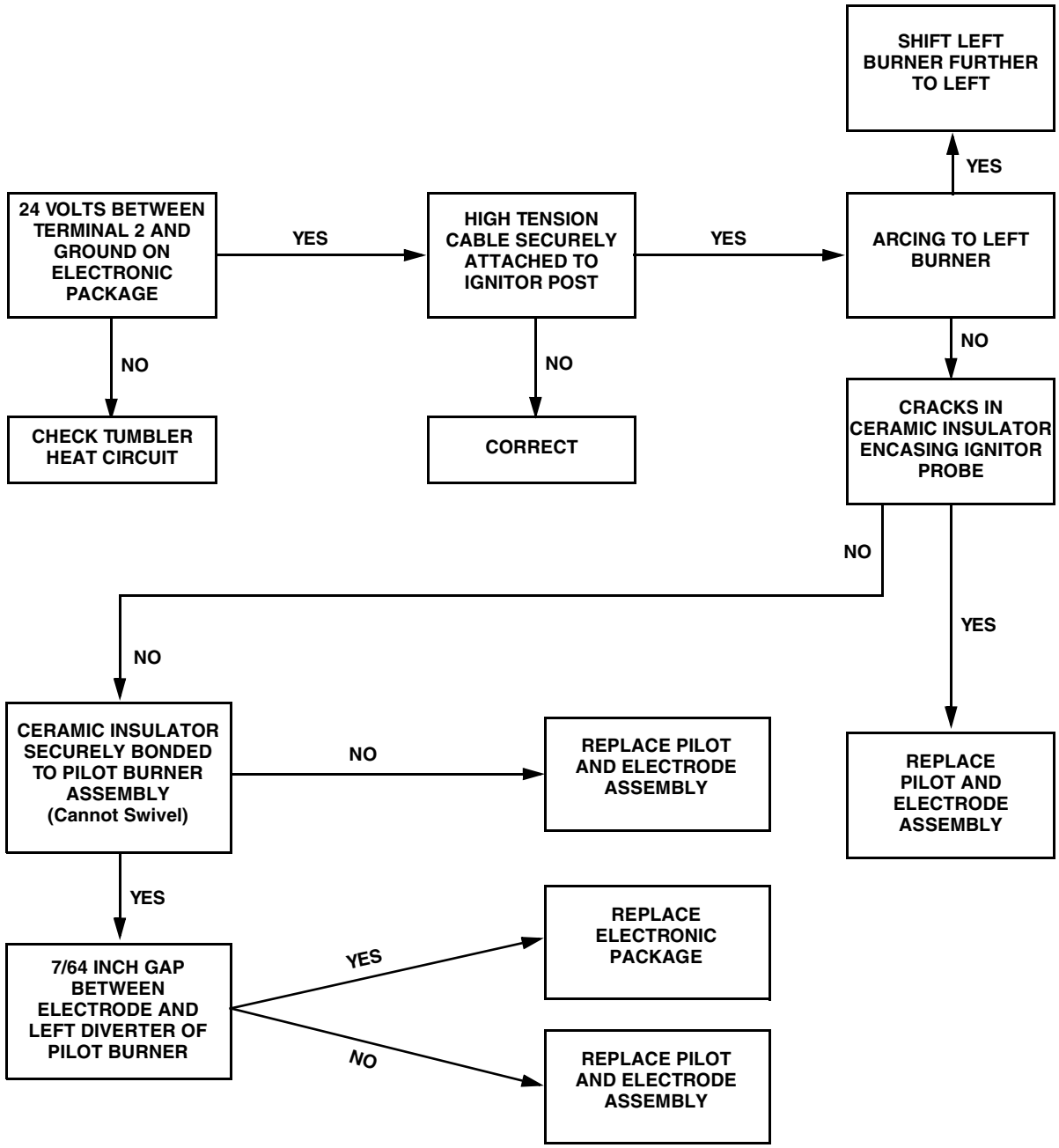
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

24. NO SPARK TO PILOT BURNER
(Electronic Pilot Ignition Models Only)



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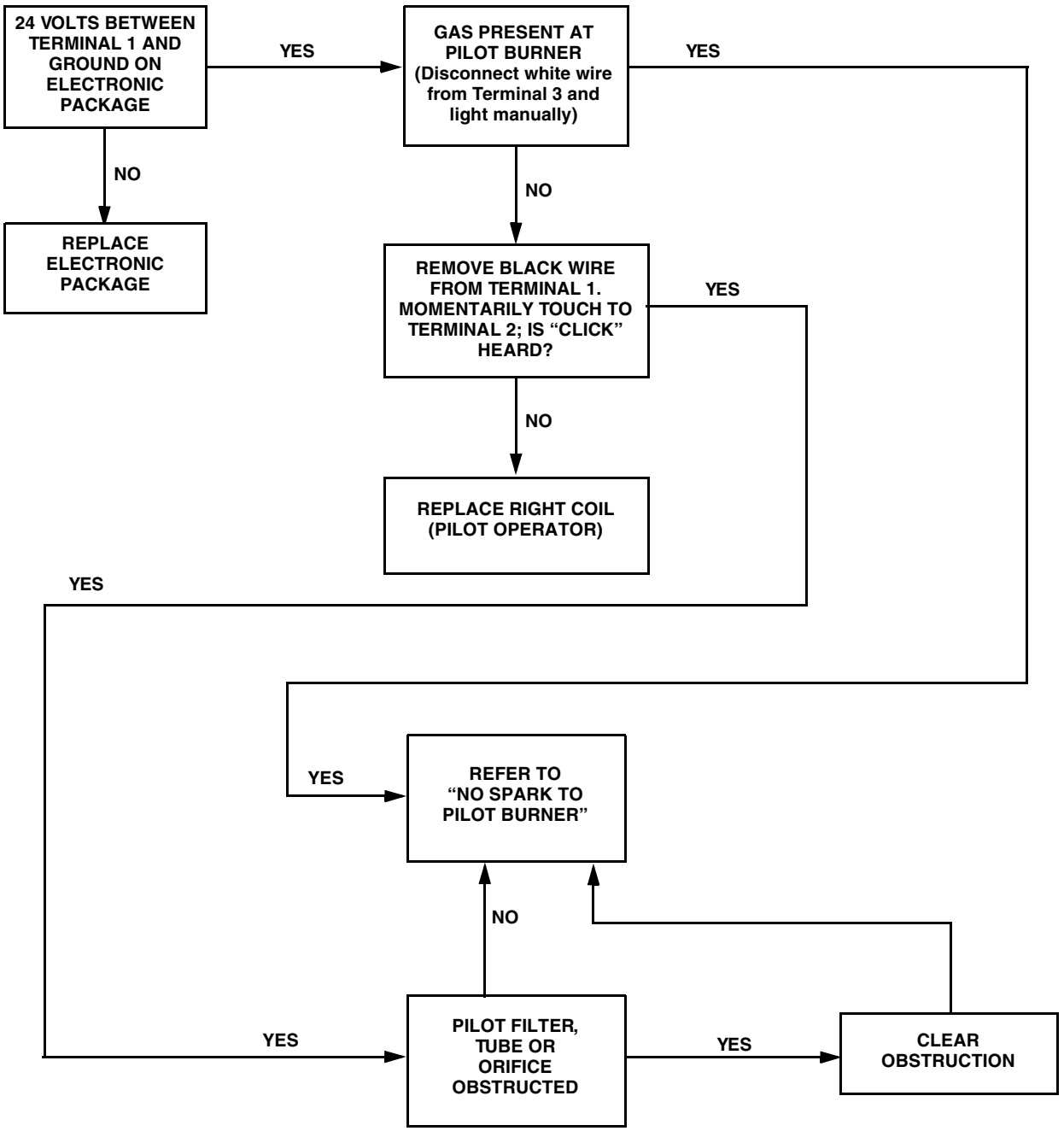
WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

25. SPARK TO PILOT BURNER — NO PILOT FLAME
(Electronic Pilot Ignition Models Only)



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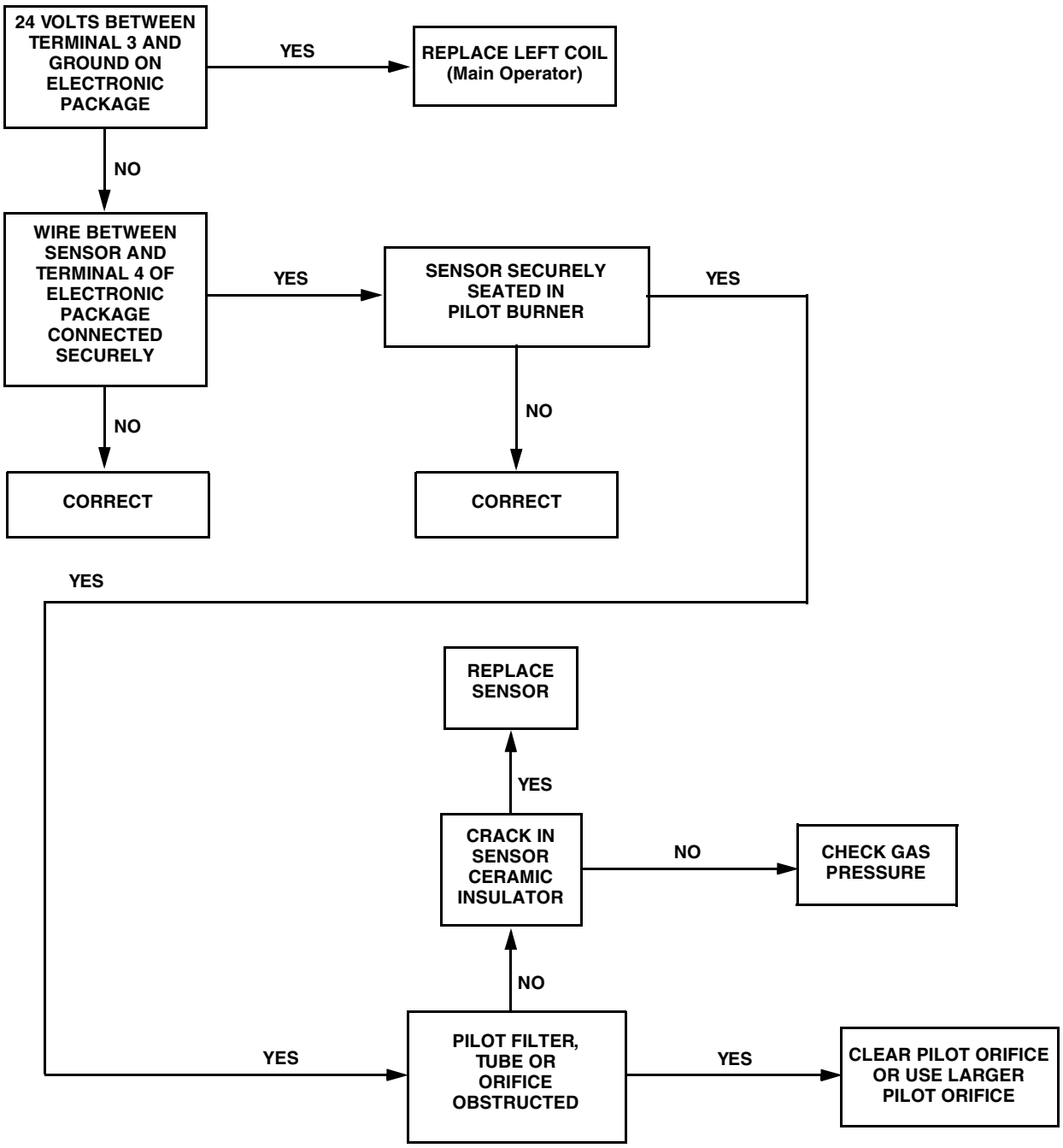
WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

26. SPARK TO PILOT BURNER — PILOT LIGHTS — NO MAIN BURNER (Electronic Pilot Ignition Models Only)



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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
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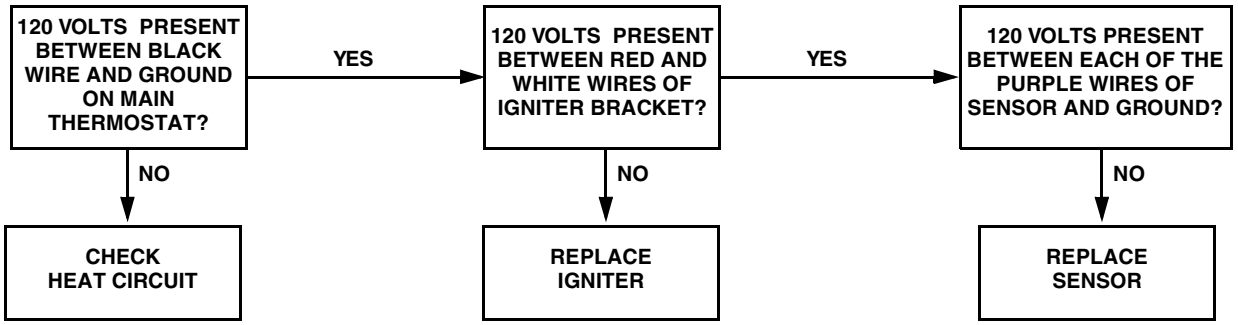
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

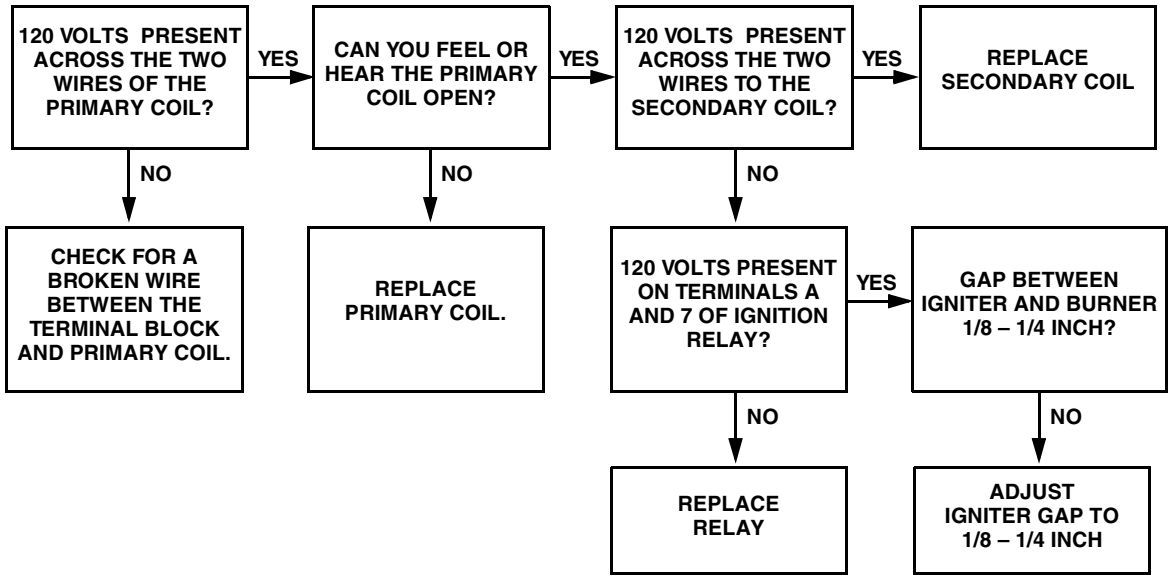
W002

27. IGNITER DOES NOT GLOW
(Johnson Controls Glow-Bar System)


120 VOLTS PRESENT BETWEEN BLACK WIRE AND GROUND ON MAIN THERMOSTAT?
YES
120 VOLTS PRESENT BETWEEN RED AND WHITE WIRES OF IGNITER BRACKET?
YES
120 VOLTS PRESENT BETWEEN EACH OF THE PURPLE WIRES OF SENSOR AND GROUND?
NO
CHECK HEAT CIRCUIT
NO
REPLACE IGNITER
NO
REPLACE SENSOR

28. IGNITER GLOWS CONSTANTLY
(Johnson Controls Glow-Bar System)

29. IGNITER GLOWS, CYCLES OFF BUT BURNER DOES NOT IGNITE
(Johnson Controls Glow-Bar System)


120 VOLTS PRESENT ACROSS THE TWO WIRES OF THE PRIMARY COIL?
YES
CAN YOU FEEL OR HEAR THE PRIMARY COIL OPEN?
YES
120 VOLTS PRESENT ACROSS THE TWO WIRES TO THE SECONDARY COIL?
YES
REPLACE SECONDARY COIL
NO
CHECK FOR A BROKEN WIRE BETWEEN THE TERMINAL BLOCK AND PRIMARY COIL.
NO
REPLACE PRIMARY COIL.
NO
120 VOLTS PRESENT ON TERMINALS A AND 7 OF IGNITION RELAY?
YES
GAP BETWEEN IGNITER AND BURNER 1/8 – 1/4 INCH?
NO
REPLACE RELAY
NO
ADJUST IGNITER GAP TO 1/8 – 1/4 INCH

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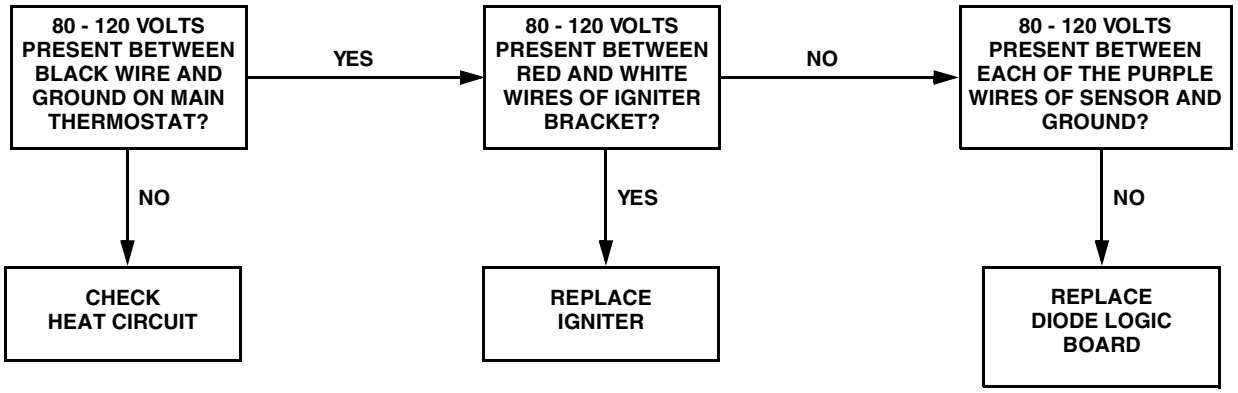
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

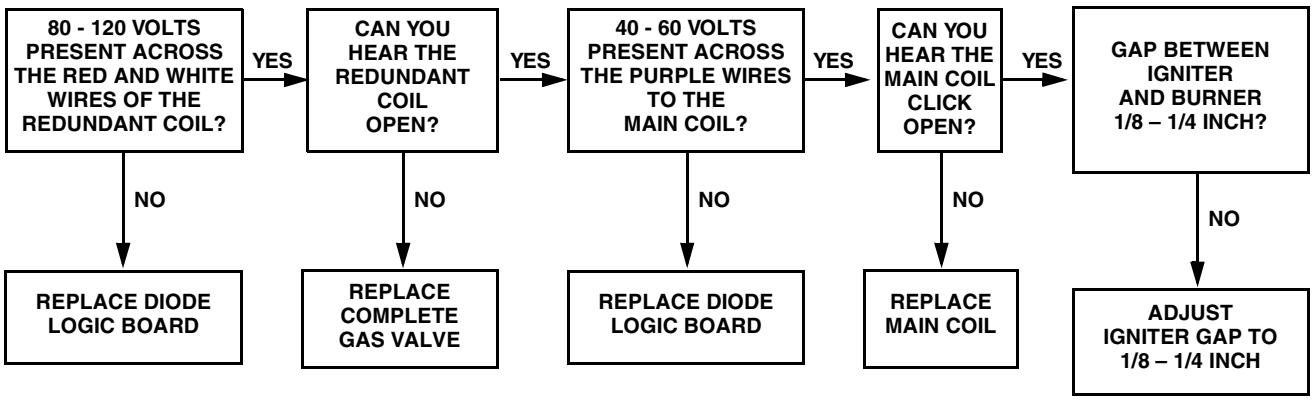
W002

30. IGNITER DOES NOT GLOW
(White Rodgers Glow-Bar System)


80 - 120 VOLTS PRESENT BETWEEN BLACK WIRE AND GROUND ON MAIN THERMOSTAT?
YES
80 - 120 VOLTS PRESENT BETWEEN RED AND WHITE WIRES OF IGNITER BRACKET?
NO
80 - 120 VOLTS PRESENT BETWEEN EACH OF THE PURPLE WIRES OF SENSOR AND GROUND?
NO
YES
NO
CHECK HEAT CIRCUIT
REPLACE IGNITER
REPLACE DIODE LOGIC BOARD

31. IGNITER GLOWS CONSTANTLY
(White Rodgers Glow-Bar System)

32. IGNITER GLOWS, CYCLES OFF BUT BURNER DOES NOT IGNITE
(White Rodgers Glow-Bar System)


80 - 120 VOLTS PRESENT ACROSS THE RED AND WHITE WIRES OF THE REDUNDANT COIL?
YES
CAN YOU HEAR THE REDUNDANT COIL OPEN?
YES
40 - 60 VOLTS PRESENT ACROSS THE PURPLE WIRES TO THE MAIN COIL?
YES
CAN YOU HEAR THE MAIN COIL CLICK OPEN?
YES
GAP BETWEEN IGNITER AND BURNER 1/8 – 1/4 INCH?
NO
NO
NO
NO
NO
REPLACE DIODE LOGIC BOARD
REPLACE COMPLETE GAS VALVE
REPLACE DIODE LOGIC BOARD
REPLACE MAIN COIL
ADJUST IGNITER GAP TO 1/8 – 1/4 INCH

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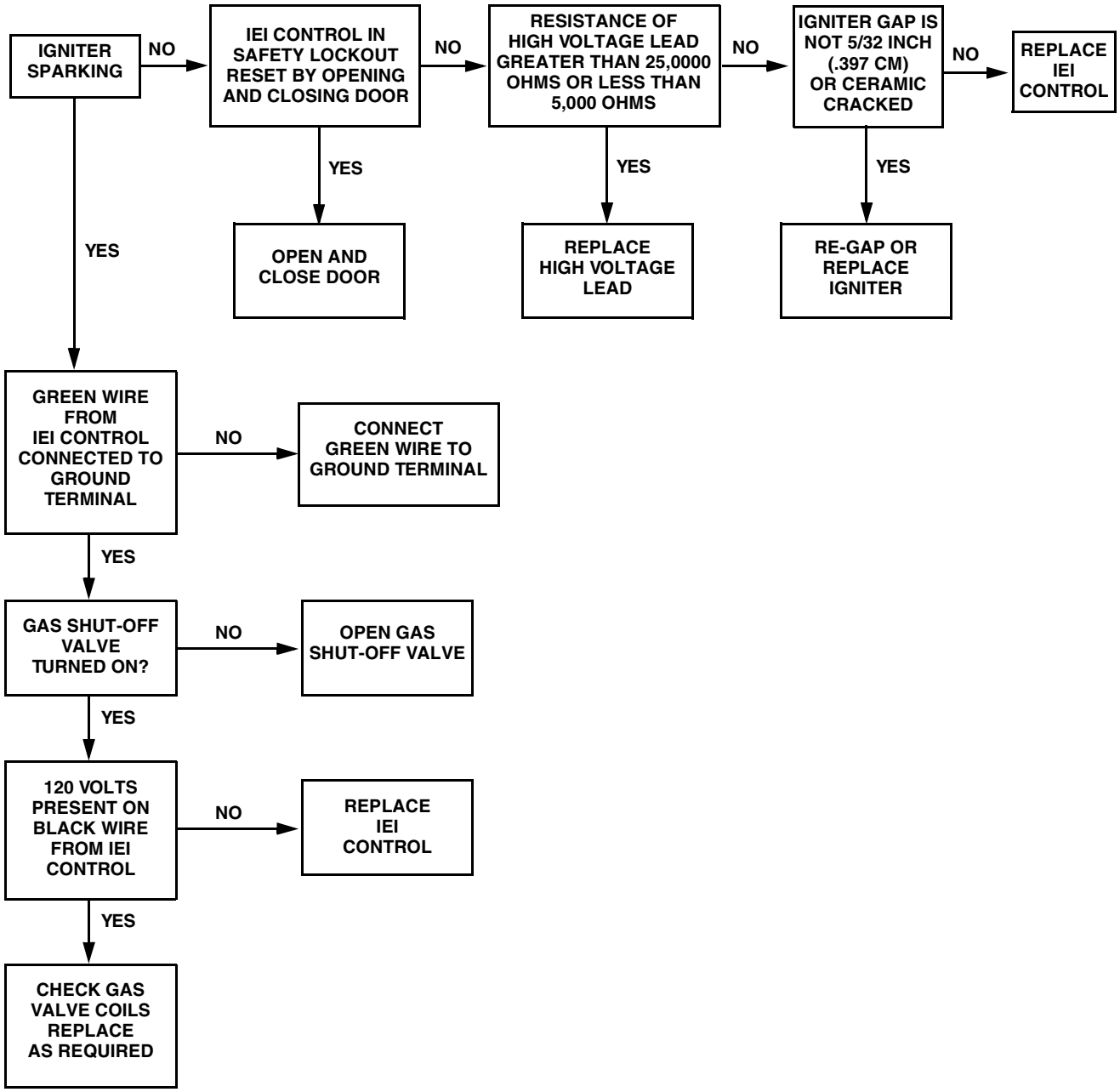
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

33. IGNITER SPARKS — NO MAIN BURNER IGNITION (Instant Electronic Ignition)



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- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

34. CSH OM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT

120 Volt/60 Hertz/1 Phase and 208-240 Volt/60 Hertz/1 Phase Nonreversing
460-480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Reversing and Nonreversing

Step	Problem	If No, then
1	Is there voltage at H2-13? If yes, continue to next step.	Replace micro control.
2	Is there voltage at H2-6? If yes, continue to next step.	Correct wiring between H2-6 and H2-13.
3	Is there voltage at H2-5? If yes, continue to next step.	Check for proper thermistor operation. Replace micro control if necessary.
4	Is there voltage to the input of the motor relay? If yes, continue to next step.	Correct wiring between motor relay and micro control.
5	Is there voltage to the output of the motor relay? If yes, continue to next step for 1 phase units, Step 11 for 3 phase units.	Replace motor relay.
6	1 Phase Only: Is there voltage to terminal 3 of CR1? If yes, continue to next step.	Correct wiring between CR1 and motor relay.
7	Is there voltage to terminal 5 of CR1? If yes, continue with Step 13.	Continue with Step 8.
8	Is there voltage to terminal 3 of the motor? If yes, continue to next step.	Replace motor.
9	Is there voltage across the coil of CR1? If yes, continue to next step.	Correct wiring to CR1.
10	Does CR1 operate? If yes, continue to Step 13.	Replace CR1.
11	3 Phase Only: Is there voltage to the input of the motor switch? If yes, continue to next step.	Correct wiring to motor switch.
12	Is there voltage to the output of the motor switch? If yes, continue to next step.	Replace motor.
13	Is there voltage across the steam valve coil? If yes, continue to next step.	Correct wiring to steam valve coil.
14	Unit operational. If unit still doesn't heat, check steam supply.	

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WARNING

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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

35. OM MODELS: NO START WITH CYCLE SELECTED, START BUTTON PRESSED AND DOOR CLOSED

120 Volt/60 Hertz/1 Phase CG & CSH Nonreversing
208-240 Volt/60 Hertz/1 or 3 Phase CSH Nonreversing
208-240 Volt/60 Hertz/3 Phase CE Nonreversing
460-480 Volt/60 Hertz/3 Phase CG, CE and CSH Nonreversing

Step	Problem	If No, then
1	Is there voltage to the primary of the transformer? If yes, continue to next step.	Correct wiring to transformer primary. Check fuses.
2	Is there 24 VAC across terminals 2 & 3 of transformer secondary? If yes, continue to next step.	Replace transformer.
3	Is there voltage to the COM terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and transformer. Check fuses.
4	Is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Check door switch for proper operation. Replace if necessary.
5	Is there voltage to terminal H2-8 on the micro control? If yes, continue to next step.	Correct wiring between micro control and door switch.
6	Is there voltage at terminal H2-7 on the micro control? If yes, continue to next step.	Replace micro control.
7	Is there voltage across the coil of motor relay? If yes, continue to next step.	Correct wiring between motor relay and micro control.
8	Is there voltage to the input of the motor relay? If yes, continue to next step.	Correct wiring between motor relay and supply voltage.
9	Is there voltage to the output of the motor relay? If yes, continue to next step.	Replace motor relay.
10	Is there voltage across terminals 1 and 4 of the motor for single phase units or L1, L2 and L3 of three phase units? If yes, continue to next step.	Correct wiring between motor and motor relay.
11	Does the motor operate? If yes, continue to next step.	Replace motor.
12	Unit operational.	

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- **Close steam valve to steam tumbler before servicing.**
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- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

36. OM MODELS: NO DISPLAY AFTER SELECTING ONE OF THE ON/SELECT KEYS
120 Volt/60 Hertz/1 Phase CG & CSH Nonreversing
208-240 Volt/60 Hertz/1 Phase CG and CSH Nonreversing
208-240 Volt/60 Hertz/3 Phase CG and CSH Reversing/Nonreversing
208-240 Volt/60 Hertz/3 Phase CE Reversing/Nonreversing
460-480 Volt/60 Hertz/3 Phase CG, CE and CSH Reversing/Nonreversing

Step	Problem	If No, then
1	Is there voltage across the primary of the transformer? If yes, continue to next step.	Correct wiring between transformer and supply voltage. Check fuses.
2	Is there 24 VAC across terminals 1 & 4 of transformers secondary? If yes, continue to next step.	Replace transformer
3	Is there 24 VAC across terminals H3-3 and H3-4 on the micro control? If yes, continue to next step.	Correct wiring between H3 and transformer. Check fuses.
4	Is there voltage to the input of the fuse on the micro control? If yes, continue to next step	Replace micro control.
5	Is there voltage to the opposite side of the fuse on the micro control? If yes, continue to next step.	Check fuse making sure it is not blown. Replace if necessary.
6	Replace micro control.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

37. CE OM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT
460-480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Reversing and Nonreversing

Step	Problem	If No, then
1	Is there voltage at H2-13? If yes, continue to next step.	Replace Micro.
2	Is there voltage at H2-6? If yes, continue to next step.	Correct wiring between H2-6 and H2-13.
3	Is there voltage at H2-5? If yes, continue to next step.	Check for proper thermistor operation. Replace micro if necessary.
4	Is there voltage to terminal 14 of the motor relay? If yes, continue to next step.	Correct wiring between motor relay and micro.
5	Is there voltage to terminal 13 of the motor relay? If yes, continue to next step for 1 phase units, Step 22 for 3 phase units.	Replace motor relay.
6	Is there voltage to the fan motor switch? If yes, continue to next step.	Correct wiring between motor switch and motor relay.
7	Is there voltage at the output of the fan motor switch. If yes, continue to next step.	Replace fan motor.
8	Is there voltage to the input of the cabinet limit? If yes, continue to next step.	Correct wiring between cabinet limit and fan motor.
9	Is there voltage to the output of the cabinet limit? If yes, continue to next step.	Check for proper airflow. Replace cabinet limit.
10	Is there voltage to the COM terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and cabinet limit.
11	Is there voltage to the N.O. terminal of the airflow switch? If yes, continue to next step.	Check for proper airflow. Replace airflow switch.
12	Is there voltage to the input of the stove limit? If yes, continue to next step.	Correct wiring between stove limit and airflow switch.
13	Is there voltage to the output of the stove limit? If yes, continue to next step.	Check for proper airflow. Replace stove limit if necessary.
14	Is there voltage HC1?	Correct wiring to HC1.
15	Is there voltage to terminals T1, T2 and T3 of HC1? If yes, continue to next step.	Correct wiring between HC1 and supply.
16	Is there voltage to terminals L1, L2 and L3 of HC1?	Replace HC1.
17	Is there voltage across the elements? If yes, then continue to next step.	Correct wiring to the elements.
18	Do the elements produce heat? If yes, continue to Step 35. NOTE: IF elements are glowing a bright red/orange, there is not enough airflow.	Check for opens or shorts in the elements.
19	Unit operational.	

(continued)

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

38. CG OM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT
120 Volt/60 Hertz/1 Phase and 208-240 Volt/60 Hertz/1 Phase Nonreversing
460-480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Reversing and Nonreversing

Step	Problem	If No, then
1	Is there voltage at H2-13? If yes, continue to next step.	Replace micro control.
2	Is there voltage at H2-6 of the micro control? If yes, continue to next step.	Correct wiring between H2-5 and H2-13 on the micro control.
3	Is there voltage at H2-5 of the micro control? If yes, continue to next step.	Check for proper thermistor operation. Replace micro control if necessary.
4	Is there voltage to input of the motor relay? If yes, continue to next step.	Correct wiring between motor relay and micro.
5	Is there voltage to the output of the motor relay? If yes, continue to next step for 1 phase units, or step 11 for 3 phase units.	Replace motor relay.
6	1 Phase Models: Is there voltage to terminal 3 of CR1? If yes, continue to next step.	Correct wiring between CR1 and motor relay.
7	Is there voltage to terminal 5 of CR1? If yes, continue to next step.	Continue with Step 8.
8	Is there voltage to terminal 3 of the motor? If yes, continue to next step.	Replace motor.
9	Is there voltage across the coil of CR1? If yes, continue to next step.	Correct wiring between CR1 and motor.
10	Does CR1 operate properly? If yes, continue with Step 13.	Replace CR1.
11	3 Phase Models: Is there voltage to the input of fan motor switch? If yes, continue to next step.	Correct wiring to fan motor switch?
12	Is there voltage out from the fan motor switch? If yes, continue to next step.	Replace fan motor.
13	Is there voltage to the input of the cabinet limit? If yes, continue to next step.	Correct wiring between cabinet limit and CR1.
14	Is there voltage to the output of the cabinet limit? If yes, continue to next step	Replace cabinet limit.
15	Is there voltage to COM terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and cabinet limit.
16	Is there voltage to the N.O. terminal of the airflow switch? If yes, continue to next step.	Check for proper operation and airflow. Replace airflow switch if necessary.
17	Is there voltage to the input of the stove limit? If yes, continue to next step.	Correct wiring between stove limit and airflow switch.
18	Is there voltage to the output of the stove limit? If yes, continue to next step.	Check for proper airflow. Replace stove limit if necessary.
19	Is there voltage to terminal 2 of the ignition control? If yes, continue to next step.	Correct wiring between ignition control and stove limit.

(continued)

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

38. CG OM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT
120 Volt/60 Hertz/1 Phase and 208-240 Volt/60 Hertz/1 Phase Nonreversing
460-480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Reversing and Nonreversing
(continued)

Step	Problem	If No, then
20	Does the igniter spark? If yes, continue to next step.	Check for proper gap on igniter and check for proper resistance of ignition cable. Replace if necessary.
21	Is there voltage at terminal 1 of the ignition control? If yes, continue to next step.	Replace ignition control.
21	Is there voltage across the gas valve? If yes, continue to next step.	Correct wiring to gas valve.
22	Is there a flame? If yes, continue to next step.	Check for gas flow and proper gas pressure. Replace gas valve or coils of gas valve.
24	Unit operational.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

39. OM MODELS: NO FAN MOTOR ROTATION WITH CYCLE SELECTED AND START PRESSED
208-240 Volt/60 Hertz/3 Phase and 480 Volt/60 Hertz/3 Phase CE Reversing Models
208-240 Volt/60 Hertz/3 Phase and 460-480 Volt/60 Hertz/3 Phase CG Reversing and CSH Models

Step	Problem	If No, then
1	Is there voltage across the primary of the transformer? If yes, continue to next step.	Correct wiring to transformer. Check fuses.
2	Is there 24 VAC across terminals 2 & 3 of the transformer secondary? If yes, continue to next step.	Replace transformer.
3	Is there voltage to the COM of the door switch? If yes, continue to next step.	Correct wiring to door switch. Check fuse.
4	Is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Check door switch and switch rod for proper operation. Replace if necessary.
5	Is there voltage to H2-8 of micro control? If yes, continue to next step.	Correct wiring between micro control and door switch.
6	Is there voltage to H2-7 of micro control? If yes, continue to next step.	Replace micro control.
7	Is there voltage across the coil of the M contactor? If yes, continue to next step.	Correct the wiring to the M contactor.
8	Is there voltage to L1, L2 and L3 of the M contactor? If yes, continue to next step.	Correct wiring between M contactor and supply voltage.
9	Is there voltage toT1, T2 and T3 of the M contactor? If yes, continue to next step.	Replace M contactor.
10	Is there voltage across L1, L2 and L3 of the motor? If yes, continue to next step.	Correct wiring between motor and M contactor.
11	Unit operational.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

40. MM MODELS: FAN MOTOR DOES NOT RUN WITH DOOR CLOSED, CYCLE SELECTED AND START BUTTON PRESSED
208-240 Volt/60 Hertz/3 Phase Gas and Steam Reversing and Nonreversing
480 Volt/60 Hertz/3 Phase Gas Nonreversing
480 Volt/60 Hertz/3 Phase Steam Reversing

Step	Problem	If No, then
1	Is there voltage to the COM of the door switch? If yes, continue to next step.	Correct wiring between door switch and L1 supply for 208-240 Volt units. Check between door switch and X1 of transformer for 480 Volt units.
2	Is there 120 VAC to the N.O. terminal of the door switch? If yes, continue to next step.	Check for proper operation of door switch arm and/or replace door switch.
3	Is there 120 VAC to terminal P2 of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
4	Is there 120 VAC to terminal P1 of the micro control? If yes, continue to next step.	Replace micro control.
5	Is there 120 VAC across the coil of the motor contactor? If yes, continue to next step.	Correct wiring to the coil of motor contactor.
6	Is there voltage to terminals L1, L2, and L3 of motor contactor? If yes, continue to next step.	Correct wiring between motor contactor and terminals L1, L2, L3 and TB1.
7	Is there voltage at terminals T1, T2 and T3 of the M contactor? If yes, continue to next step.	Replace motor contactor.
8	Is there voltage to L1, L2 and L3 of motor? If yes, continue to next step.	Correct wiring between motor and motor contactor.
9	Replace motor.	

NOTE: Make sure fuse on x1 of transformer is operational (240 Volt and 480 Volt/60 Hertz/3 Phase units).

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

41. MM MODELS: CYLINDER MOTOR DOES NOT RUN OR REVERSE WITH DOOR CLOSED, CYCLE SELECTED AND START BUTTON PRESSED IN REVERSING MODE OR NONREVERSING MODE

480 Volt/60 Hertz/3 Phase Steam Reversing and 208-240 Volt/60 Hertz/3 Phase Gas and Steam Reversing Models

Step	Problem	If No, then
1	Is there120 VAC to the COM terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and L1 supply for 208-240 units. Check transformer on 480 Volt.
2	Is there 120 VAC to the N.O. terminal of the door switch? If yes, continue to next step.	Check for proper operation of door switch arm and/or replace door switch.
3	Is there 120 VAC to terminal P2 of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
4	Is there 120 VAC to terminal P1 of the micro control? If yes, continue to next step.	Replace micro control.
5	Is there 120 VAC across the coils of the motor contactor? If yes, continue to next step.	Correct wiring to the coil of motor contactor.
6	Is there voltage to terminals L1, L2, and L3 of motor contactor? If yes, continue to next step.	Correct wiring between motor contactor terminals and L1, L2, L3 of TB1.
7	Is there voltage at terminals T1, T2 and T3 of the M contactor? If yes, continue to next step.	Replace motor contactor.
8	Is there voltage to terminals T1, T2, T3 on the forward contactor and voltage to terminals U, V, and W on the reversing contactor? If yes, continue to next step.	Correct wiring between forward contactor and motor contactor and /or correct wiring between reverse contactor and motor contactor.
9	Is there voltage to L1, L2, L3 on the forward contactor or voltage to terminals X, Y, and Z on the reversing contactor? If yes, continue to next step.	Continue to Step 11.
10	Is there voltage to L1, L2 and L3 at the cylinder motor? If yes, continue to step 16.	Correct wiring between cylinder motor and forward or reversing contactor.
11	Is there voltage across the coils of either the forward or reversing contactor? If yes, replace either the forward or reversing contactor.	Continue to next step.
12	Is there voltage at the CW or CCW terminal on the solid state timer? If yes, correct wiring between the solid state timer and either the forward or reversing coil.	Continue to next step.
13	Is there voltage at L1 of the solid state timer? If yes, replace solid state timer.	Continue to next step.
14	Is there voltage to the output of the auxiliary contacts on the motor contactor? If yes, correct wiring between motor contactor and solid state timer.	Continue to next step.
15	Is there voltage to the input side of the auxiliary contacts on the motor contactor? If yes, replace motor contactor	Correct wiring between motor contactor and TB1-L1 supply.
16	Unit operational.	

NOTE: If the unit will not reverse when reversing is selected, check for proper operation and wiring of reversing switch. Replace if necessary.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

42. MM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT
120 Volt/60 Hertz/1 Phase and 208-240 Volt/60 Hertz/1 Phase Gas and Steam Nonreversing
480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Steam Reversing and Nonreversing

Step	Problem	If No, then
1	Is there voltage to COM terminal of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
2	Is there voltage to the N.O. terminal of the micro control? If yes, continue to next step for gas models, to step 20 for steam models.	Replace micro.
3	Is there voltage to the input of the stove high limit? If yes, continue to next step.	Correct wiring between stove high limit and micro control.
4	Is there voltage to the output of the stove high limit? If yes, continue to next step.	Check for proper airflow. If airflow is good, replace stove high limit.
5	Is there voltage to the N.O. terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and stove high limit.
6	Is there voltage at COM of the airflow switch? If yes, continue to next step.	Check for proper airflow and function of airflow switch. Replace airflow switch if necessary.
7	Is there voltage to the input of the cabinet limit? If yes, continue to next step.	Correct wiring to between cabinet limit and airflow switch.
8	Is there voltage to the output of the cabinet limit? If yes, continue to next step.	Replace cabinet limit.
9	Is there voltage to terminal 1 of CR2? If yes, continue to next step.	Correct wiring between CR2 and cabinet limit.
10	Is there voltage to terminal 3 of the CR2 If yes, continue to next step.	Continue with step 16.
11	Is there voltage to L1 of I.E.I. board? If yes, continue to next step.	Correct wiring between I.E.I. board and CR2.
12	Is there voltage across gas valve coils? If yes, continue to next step.	Check wiring. Replace I.E.I. board if necessary.
13	Is the igniter sparking? If yes, continue to next step.	Check resistance of High Voltage lead (5k and 20k). Replace if necessary.
14	Is there gas flow through the valve? If yes, continue to step 22.	Check for proper gas pressure. Replace gas valve if necessary.
15	Is there voltage across the coil of CR2. If yes, continue to next step.	Replace CR2.
16	Is there 120 VAC on terminal 3 of motor? If yes, correct wiring between CR2 and motor. Continue to step 22.	Replace motor.
17	Is there voltage across the coil of the steam valve? If yes, continue to next step.	Correct wiring to steam valve.
18	Does the unit heat? If yes, continue to next step.	Check for proper steam supply. Replace steam valve if necessary.
19	Unit operational.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

43. MM MODELS: NO HEAT WITH CYCLE SELECTED, UNIT RUNNING AND CALLING FOR HEAT

208-240 Volt/60 Hertz/3 Phase Gas Reversing

Step	Problem	If No, then
1	Is there voltage to the COM terminal of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
2	Is there voltage to the N.O. terminal of the micro control? If yes, continue to next step.	Replace the micro control.
3	Is there voltage to the COM terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and micro control.
4	Is there voltage to the N.O. contact of the airflow switch? If yes, continue to next step.	Check for proper operation of airflow switch and airflow. Replace airflow switch if necessary.
5	Is there voltage to the input of the stove limit? If yes, continue to next step.	Correct wiring between stove limit and airflow switch.
6	Is there voltage to the output of the stove limit? If yes, continue to next step.	Check for proper airflow and flame pattern. Replace stove high limit if necessary.
7	Is there voltage to the input of the cabinet high limit? If yes, continue to next step.	Correct wiring between cabinet high limit and stove high limit.
8	Is there voltage to the output side of the cabinet high limit? If yes, continue to next step.	Check for proper airflow. Replace cabinet limit if necessary.
9	Is there voltage to L1 of the I.E.I. board? If yes, continue to next step.	Correct wiring between I.E.I. board and cabinet high limit.
10	Is there voltage across V1 and V2 of the I.E.I. board? If yes, continue to next step.	Make sure unit is not in flame lockout. Replace I.E.I. board if necessary.
11	Is there voltage across the coils of the gas valve? If yes, continue to next step.	Correct wiring between gas valves and I.E.I. board.
12	Does the unit ignite? If yes, continue to next step.	Continue to next step.
13	Is there a spark? If yes, continue to next step.	Check for proper igniter gap. Check for proper resistance of high voltage lead, 5 k to 25 k ohms.
14	Is there a gas flow through the valve? If yes, continue to next step.	Check to see if gas line is on and that the gas line was bled of air. Also, check for proper gas pressure.
15	Unit operational.	

(continued)

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

44. OM REVERSING MODELS: NO CYLINDER ROTATION OR REVERSING CAPABILITIES
208-240 Volt/60 Hertz/3 Phase and 480 Volt/60 Hertz/3 Phase CE Models
208-240 Volt/60 Hertz/3 Phase and 460-480 Volt/60 Hertz/3 Phase CG and CSH Models

Step	Problem	If No, then
1	Is there voltage across the primary of the transformer? If yes, continue to next step.	Correct wiring between transformer and supply voltage. Check fuses.
2	Is there voltage across terminals 2 & 3 of the transformer secondary? If yes, continue to next step.	Replace transformer.
3	Is there voltage to the COM of the door switch? If yes, continue to next step.	Correct wiring to door switch. Check fuses.
4	Is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Correct wiring and check fuses.
5	Is there voltage to H2-8 terminal of micro control? If yes, continue to next step for forward rotation, or step 11 for reverse rotation.	Correct wiring between micro control and door switch.
6	Forward Rotation: Is there voltage to H2-3 of micro control? If yes, continue to next step.	Make sure unit is in the forward portion of rotation. Replace micro control.
7	Is there voltage across the coil of the forward relay? If yes, continue to next step.	Correct the wiring to the relay.
8	Is there voltage to terminals L1, L2 and L3 of the forward relay? If yes, continue to next step.	Correct wiring between relay and supply voltage.
9	Is there voltage to terminals T1, T2 and T3 of the forward relay? If yes, continue to next step.	Replace forward relay.
10	Is there voltage across L1, L2 and L3 of the motor? If yes, continue step 16.	Correct wiring between motor and forward relay.
11	Reverse Rotation: Is there voltage to H2-4 of micro control? If yes, continue to next step.	Make sure unit is in the reverse portion of rotation. Replace micro control.
12	Is there voltage across the coil of the reverse relay? If yes, continue to next step.	Correct the wiring to the relay.
13	Is there voltage to terminals X, Y and Z of the reversing relay? If yes, continue to next step.	Correct wiring between relay and supply voltage.
14	Is there voltage to terminals U, V and W of the reversing relay? If yes, continue to next step.	Replace reversing relay.
15	Is there voltage across L1, L2 and L3 of the motor? If yes, continue to next step.	Correct wiring between motor and reversing relay.
16	Does the motor turn? If yes, continue to next step.	Replace motor.
17	Does the cylinder rotate? If yes, continue to next step.	Check drive components between motor and cylinder.
18	Unit operational.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

45. MM MODELS: NO DISPLAY AFTER PRESSING THE ON/SELECT KEYS
120 Volt/60 Hertz/1 Phase and 208-240 Volt/60 Hertz/1 Phase Gas and Steam Nonreversing
480 Volt/60 Hertz/3 Phase and 208-240 Volt/60 Hertz/3 Phase Gas and Steam Reversing/Nonreversing

Step	Problem	If No, then
1	Is there 120 VAC across COM and Neutral (P3) terminals on PC board? If yes, replace PC board.	Correct wiring between TB1-L1 and COM on PC board or between TB1-N and P3 (Neutral) on PC board for low voltage. Correct wiring between COM on PC board and X1 of transformer for 480 Volt/60 Hertz/3 Phase voltage.

NOTE: Make sure fuse on X1 line of transformer is operational. Used for 480 Volt/60 Hertz/3 Phase voltage.

NOTE: If unable to change settings, the key board had been manually locked out. To lock or unlock, press and hold the START pad and press TIME.

46. MM MODELS: MOTOR DOES NOT RUN WITH DOOR CLOSED, CYCLE SELECTED AND START BUTTON PRESSED
208-240 Volt/60 Hertz/3 Phase Gas and Steam Reversing and Nonreversing
480 Volt/60 Hertz/3 Phase Gas Nonreversing
480 Volt/60 Hertz/3 Phase Steam Reversing

Step	Problem	If No, then
1	Is there voltage to the COM of the door switch? If yes, continue to next step.	Correct wiring between door switch and L1 supply for 208-240 Volt units. Check between door switch and X1 of transformer for 480 Volt/3 Phase units.
2	Is there 120 VAC to the N.O. terminal of the door switch? If yes, continue to next step.	Check for proper operation of door switch arm and/or replace door switch.
3	Is there 120 VAC to terminal P2 of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
4	Is there 120 VAC to terminal P1 of the micro control? If yes, continue to next step.	Replace micro control.
5	Is there 120 VAC across the coil of the motor contactor? If yes, continue to next step.	Correct wiring to the coil of motor contactor.
6	Is there voltage to terminals L1, L2, and L3 of motor contactor? If yes, continue to next step.	Correct wiring between motor contactor and terminals L1, L2, L3 and TB1.
7	Is there voltage at terminals T1, T2 and T3 of the M contactor? If yes, continue to next step.	Replace motor contactor.
8	Is there voltage to L1, L2 and L3 at motor? If yes, continue to next step.	Correct wiring between motor and motor contactor.
9	Replace motor.	

NOTE: Make sure fuse on x1 of transformer is operational (480 Volt/60 Hertz/3 Phase units).

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

47. MM MODELS: CYLINDER MOTOR DOES NOT RUN OR REVERSE WITH DOOR CLOSED, CYCLE SELECTED AND START BUTTON PRESSED IN REVERSING MODE OR NONREVERSING MODE

480 Volt/60 Hertz/3 Phase Steam Reversing and 208-240 Volt/60 Hertz/3 Phase Gas and Steam Reversing Models

Step	Problem	If No, then
1	Is there120 VAC to the COM terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and L1 supply for 208-240 units. Check transformer on 480 Volt machines.
2	Is there 120 VAC to the N.O. terminal of the door switch? If yes, continue to next step.	Check for proper operation of door switch arm and/or replace door switch.
3	Is there 120 VAC to terminal P2 of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
4	Is there 120 VAC to terminal P1 of the micro control? If yes, continue to next step.	Replace micro control.
5	Is there 120 VAC across the coils of the motor contactor? If yes, continue to next step.	Correct wiring to the coil of motor contactor.
6	Is there voltage to terminals L1, L2, and L3 of motor contactor? If yes, continue to next step.	Correct wiring between motor contactor terminals and L1, L2, L3 of TB1.
7	Is there voltage at terminals T1, T2 and T3 of the M contactor? If yes, continue to next step.	Replace motor contactor.
8	Is there voltage to terminals T1, T2, T3 on the forward contactor and voltage to terminals U, V, and W on the reversing contactor? If yes, continue to next step.	Correct wiring between forward contactor and motor contactor and /or correct wiring between reverse contactor and motor contactor.
9	Is there voltage to L1, L2, L3 on the forward contactor or voltage to terminals X, Y, and Z on the reversing contactor? If yes, continue to next step.	Continue to Step 11.
10	Is there voltage to L1, L2 and L3 at motor? If yes, continue to step 16.	Correct wiring between cylinder motor and forward or reversing contactor.
11	Is there voltage across the coils of either the forward or reversing contactor? If yes, replace either the forward or reversing contactor.	Continue to next step.
12	Is there voltage at the CW or CCW terminal on the solid state timer? If yes, correct wiring between the solid state timer and either the forward or reversing coil.	Continue to next step.
13	Is there voltage at L1 of the solid state timer? If yes, replace solid state timer.	Continue to next step.
14	Is there voltage to the output of the auxiliary contacts on the motor contactor? If yes, correct wiring between motor contactor and solid state timer.	Continue to next step.
15	Is there voltage to the input side of the auxiliary contacts on the motor contactor? If yes, replace motor contactor.	Correct wiring between motor contactor and TB1-L1 supply.
16	Unit operational.	

NOTE: If the unit will not reverse when reversing is selected, check for proper operation and wiring of reversing switch. Replace if necessary.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

48. MM NONREVERSING MODELS: MOTOR DOES NOT RUN WITH DOOR CLOSED, CYCLE SELECTED AND START BUTTON PRESSED
120 Volt/60 Hertz/1 Phase Gas and Steam
208-240 Volt/60 Hertz/3 Phase Gas
480 Volt/60 Hertz/3 Phase Steam

NOTE: Voltage checks referenced to are for neutral unless stated otherwise.

Step	Problem	If No, then
1	Is there120 VAC to the COM of the door switch? If yes, continue to next step.	Correct wiring between door switch and L1 supply for low voltage units. Check between door switch and X1 of transformer for high voltage units.
2	Is there 120 VAC to the N.O. terminal of the door switch? If yes, continue to next step.	Check for proper operation of door switch arm and/or replace door switch.
3	Is there 120 VAC to terminal P2 of the micro control? If yes, continue to next step.	Correct wiring between door switch and micro control.
4	Is there 120 VAC to terminal P1 of the micro control? If yes, continue to next step for gas models, step 9 for steam models.	Replace micro control.
5	Gas Models: Is there 120 VAC across the coils of the CR1? If yes, continue to next step for gas models, step 9 for steam models.	Correct wiring to the coil of CR1.
6	Is there 120 VAC to terminal 1 on CR1? If yes, continue to next step.	Correct wiring between terminal 1and door switch.
7	Is there 120 VAC to terminal 3 on CR1? If yes, continue to next step for 120 VAC units, or step 12 for 240 VAC units.	Replace CR1
8	Is there 120 VAC across the terminals 1 and 4 of the motor? If yes, replace motor.	Correct wiring to motor.
9	STEAM: Is there 120 VAC across M coil?	Correct the wiring to M coil.
10	Is there 120 VAC on terminal L1 of the motor relay for single phase units, or across L1, L2, and L3 for three phase units? If yes, continue to next step.	Correct wiring between motor and motor relay and the terminal block.
11	Is there 120 VAC on terminal T1 of the motor relay for single phase units, or across T1, T2, and T3 for three phase units? If yes, continue to step 8.	Replace motor control relay.
12	Is there 120 VAC to terminal 1 of the motor? If yes, continue to next step.	Correct wiring between motor CR1.
13	Is there 240 VAC across terminals 1 and 4 of the motor? If yes, replace motor.	Continue to next step.
14	Is there 120 VAC to terminal 8 of CR1? If yes, continue to next step.	Correct wiring between CR1-8 and L2.
15	Is there 120 VAC to terminal 7 of CR1? If yes, correct wiring between CR1-7 and terminal 4 of the motor.	Replace CR1.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

49. CD MODELS: NO START WITH VEND SATISFIED AND START BUTTON PRESSED IN 208-240 Volt/60 Hertz/3 Phase Gas Nonreversing

NOTE: All voltage checks are referenced to neutral unless stated otherwise.

Step	Problem	If No, then
1	Is there voltage to COM terminal of switch A? If yes, continue to next step.	Correct wiring between L1 and switch A.
2	Is there voltage to the NC terminal of switch A? If yes, continue to next step.	Check for proper operation of switch A. Replace switch A if necessary.
3	Is there voltage to the common terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and switch A.
4	With the door closed, is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Check door switch for proper operation, replace if necessary.
5	Is there voltage to the input side of the Push-To-Start button? If yes, continue to next step.	Correct wiring between start switch and door switch.
6	Is there voltage to the input side of the auxiliary contacts on the motor contactor? If yes, continue to next step.	Correct wiring between motor contactor and door switch.
7	Is there voltage across the coil of the motor control contactor?	Correct wiring between motor contactor and Push-To-Start button.
8	If the start button is released, does the motor contactor stay in the made position? If yes, continue to next step.	Check for proper operation of motor contactor, replace if necessary.
9	Is there voltage to L1, L2, and L3 of the motor contactor? If yes, continue to next step.	Correct wiring between motor contactor and L1, L2 and L3 supply.
10	Is there voltage to T1, T2, and T3 of the motor contactor? If yes, continue to next step.	Check for proper operation. Replace motor contactor if necessary.
11	Is there voltage to L1, L2, and L3 of the motor? If yes, continue to next step.	Correct wiring between motor contactor and motor.
12	Is the internal wiring of the motor correct for the supply voltage?	Change the wiring accordingly.
13	Thermal overload cycled, allow motor to cool and recheck.	Replace motor.
14	Unit operational.	

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

50. CD MODELS: NO HEAT WITH VEND SATISFIED AND UNIT RUNNING 208-240 Volt/60 Hertz/3 Phase Gas Nonreversing

NOTE: All voltage checks are referenced to neutral unless stated otherwise.

Step	Problem	If No, then
1	Is there voltage to the input of the motor switch? If yes, continue to next step.	Correct wiring to the input of motor switch.
2	Is there voltage to the output of the motor switch? If yes, continue to next step.	Replace motor.
3	Is there voltage to the input of the cabinet limit? If yes, continue to next step.	Correct wiring between cabinet limit and motor switch.
4	Is there voltage to the output of the cabinet limit? If yes, continue to next step.	Check for proper operation, replace if necessary.
5	Is there voltage to the COM terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and cabinet limit.
6	Is there voltage to the N.O. terminal of the airflow switch? If yes, continue to next step.	Check for proper airflow and function of the airflow switch. Replace airflow switch if necessary.
7	Is there voltage to the input of the stove limit? If yes, continue to next step.	Correct wiring between stove limit and airflow switch.
8	Is there voltage to the output of the stove limit? If yes, continue to next step.	Check for blockage and proper airflow. Replace stove limit if necessary.
9	Is there voltage to the N.C. terminal of switch B? If yes, continue to next step.	Correct wiring between switch B and stove limit.
10	Is there voltage to the COM terminal of switch B? If yes, continue to next step.	Check for proper operation, replace switch B if necessary.
11	Is there voltage to the input of the adjustable bulb thermostat? If yes, continue to next step.	Correct wiring between thermostat and switch B.
12	Is there voltage to the output of the adjustable bulb thermostat? If yes, continue to next step.	Replace adjustable bulb thermostat.
13	Is there voltage to the ignition control board? If yes, continue to next step.	Correct wiring between IEI board and thermostat.
14	Does the igniter spark? If yes, continue to next step.	Check for proper igniter gaps and resistance for high voltage lead.
15	Is there voltage across V1 and V2 of the IEI board? If yes, continue to next step.	Replace IEI board.
16	Is there voltage across the coils of the gas valve? If yes, continue to next step.	Correct wiring between gas valve and IEI board.
17	Is there a flame? If yes, unit is operational.	Continue to next step.
18	Is there gas pressure on the output side of the gas valve? If yes, continue to next step.	Replace gas valve.
19	Check for proper gas pressure. 3.5 water column inches for Natural Gas, 10.5 W.C.I. for L.P. Gas.	

† Proper gaps for igniter: 5/16 above burner and 5/32 between electrode and grounding tab. The proper resistance of the high voltage lead is between 5,000 Ohms and 25,000 Ohms.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

51. CD MODELS: NO HEAT WITH VEND SATISFIED AND UNIT RUNNING 120 Volt/60 Hertz/1 Phase and 240 Volt/60 Hertz/1 Phase Gas Nonreversing Models

Step	Problem	If No, then
1	Is there voltage on red wire of the motor? If yes, continue to next step.	Replace motor.
2	Is there voltage to the input of the cabinet high limit? If yes, continue to next step.	Correct wiring between cabinet high limit and motor.
3	Is there voltage to the output of the cabinet high limit? If yes, continue to next step.	Check for proper operation. Replace if necessary.
4	Is there voltage to the COM terminal of the airflow switch? If yes, continue to next step.	Correct wiring between airflow switch and cabinet high limit.
5	Is there voltage to the N.O. terminal of the airflow switch? If yes, continue to next step.	Check for proper operation and airflow. Replace switch if necessary.
6	Is there voltage to the input side of the stove high limit thermostat? If yes, continue to next step.	Correct wiring between stove limit and airflow switch.
7	Is there voltage to the output side of the stove high limit thermostat? If yes, continue to next step.	Check for proper operation and airflow. Replace stove high limit if necessary.
8	Is there voltage to the N.C. terminal of switch B on the coin drop? If yes, continue to next step.	Correct wiring between switch B and stove high limit.
9	Is there voltage to the COM terminal of switch B? If yes, continue to next step.	Check for proper operation of coin drop. Replace switch B if necessary.
10	Is there voltage to the input side of the adjustable thermostat? If yes, continue to next step.	Correct wiring between switch B and thermostat.
11	Is there voltage to the output side of the adjustable thermostat? If yes, continue to next step.	Replace thermostat.
12	Is there voltage to L1 of the ignition control board (IEI board)? If yes, continue to next step.	Correct wiring between ignition control board and thermostat.
13	Does the igniter spark? If yes, continue to next step.	Check for proper gap on igniter and check for proper resistance of high voltage lead.† Replace lead if necessary.
14	Is there voltage across V1 and V2 of the IEI board? If yes, continue to next step.	Replace IEI board.
15	Is there voltage across the coils of the gas valve? If yes, continue to next step.	Correct wiring between gas valve and IEI board.
16	Is there a flame? If yes, unit is operational.	Continue to next step.
17	Is there gas pressure on the output side of the gas valve? If yes, continue to next step.	Replace gas valve.
18	Check for proper gas pressure. 3.5 water column inches for Natural Gas, 10.5 W.C.I. for L.P. Gas.	

† Proper gaps for igniter: 5/16 above burner and 5/32 between electrode and grounding tab. The proper resistance of the high voltage lead is between 5,000 Ohms and 25,000 Ohms.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

52. CD MODELS: NO START WITH VEND SATISFIED AND START BUTTON PUSHED 240 Volt/60 Hertz/1 Phase Gas Nonreversing

NOTE: All voltage checks are referenced to neutral unless stated otherwise.

Step	Problem	If No, then
1	Is there voltage to the NC terminal of switch A? If yes, continue to next step.	Correct wiring between L1 on TBI and switch A.
2	Is there voltage to COM terminal of switch A? If yes, continue to next step.	Check for proper operation of switch A. Replace switch A if necessary.
3	Is there voltage to COM terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and switch A of the rotary coin drop.
4	With the door closed, is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Check door switch for proper operation, replace if necessary.
5	Is there voltage across the coil of the control relay (CR)? If yes, continue to next step.	Correct wiring to the control relay.
6	Is there voltage to terminal 5 of the motor? If yes, continue to next step.	Correct wiring between motor and door switch.
7	Is there voltage to the input side of the start switch? If yes, continue to next step.	Correct wiring between start switch and door switch.
8	With the start button pressed in, is there voltage to the output side of the start button? If yes, continue to next step.	Replace start switch.
9	Is there voltage to terminal 1 of the control relay? If yes, continue to next step.	Correct wiring to terminal 1 of the control relay.
10	Is there voltage to terminal 3 of the control relay? If yes, continue to next step.	Check for proper operation. Replace control relay if necessary.
11	Is there voltage to terminal 1 of the motor? If yes, continue to next step.	Correct wiring between motor and start switch.
12	Does the motor run? If yes, continue to next step.	Replace the motor.
13	Unit operational.	

NOTE: If the motor only runs with the start switch pressed in, that means the centrifugal switch in the motor is bad. Replace the motor.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

53. CD MODELS: NO START WITH VEND SATISFIED AND START BUTTON PUSHED 120 Volt/60 Hertz/1 Phase Gas Nonreversing

NOTE: All voltage checks are referenced to neutral unless stated otherwise.

Step	Problem	If No, then
1	Is there voltage to the NC terminal of switch A? If yes, continue to next step.	Correct wiring between L1 on TBI and switch A.
2	Is there voltage to COM terminal of switch A? If yes, continue to next step.	Check for proper operation of switch A. Replace switch A if necessary.
3	Is there voltage to COM terminal of the door switch? If yes, continue to next step.	Correct wiring between door switch and switch A of the rotary coin drop.
4	With the door closed, is there voltage to the N.O. terminal of the door switch? If yes, continue to next step.	Check door switch for proper operation, replace if necessary.
5	Is there voltage to terminal 5 of the motor? If yes, continue to next step.	Correct wiring between motor and door switch.
6	Is there voltage to the input side of the start switch? If yes, continue to next step.	Correct wiring between start switch and door switch.
7	With the start button pressed in, is there voltage to the output side of the start button? If yes, continue to next step.	Replace start switch.
8	Is there voltage to terminal 1 of the motor? If yes, continue to next step.	Correct wiring between motor and start switch.
9	Does the motor run? If yes, continue to next step.	Replace the motor.
10	Unit operational.	

NOTE: If the motor only runs with the start switch pressed in, that means the centrifugal switch in the motor is bad. Replace the motor.

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Section 4
Grounding

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

WARNING

To reduce the risk of fire and electric shock, check with a qualified serviceperson for proper grounding procedures. Improper connection of the equipment grounding conductor may result in a risk of electric shock.

W068R1

WARNING

To reduce the risk of fire and electric shock, if electrical supply is coming from a three phase service, DO NOT connect a "High Leg" or "Stinger Leg" to a single phase machine. On a three phase machine, if there is a "High Leg" or "Stinger Leg" it should be connected to L3.

W069

Grounding Instructions

Tumbler must be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electric shock by providing the path of least resistance for electric current. Tumbler must be connected to a grounded metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the appropriate ground location.

NOTE: To ensure protection against shock, this tumbler MUST be electrically grounded in accordance with local codes, or in the absence of local codes, with the latest edition of the National Electrical Code ANSI/NFPA No. 70. In Canada the electrical connections are to be made in accordance with CSA C22.1 or the latest edition of the Canadian Electrical Code, Part I and/or local codes. Electrical work should be done by a qualified electrician.

WARNING

All electrical connections should be made by a qualified electrician.

To reduce the risk of electrical shock, de-energize the electrical circuit being connected to the tumbler before making any electrical connections. Never attempt to connect a live circuit.

W070

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Section 5
Service Procedures

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

IMPORTANT: References made to the left or right hand direction are taken from the operator's position facing the front of the tumbler.

54. CONTROL PANEL

Refer to *Figure 1.*

a. Unlock and open access panel. To hold panel open, swing support rod under panel.

b. **Manual Timer and Coin Meter Models**

(1) Remove two screws holding control panel to cabinet.

(2) Lift control panel off top edge of front panel and pull panel forward just far enough to disconnect wire harness at the plug.

55. PUSH-TO-START SWITCH

a. Remove control panel.

b. Remove two screws holding switch, and mounting bracket (if applicable), to control panel. Refer to *Figure 1*.

c. Disconnect wires from switch terminals and remove switch.

NOTE: Refer to wiring diagram when rewiring switch.

56. COOLING, DRYING, OR RUN LIGHT

a. Remove control panel.

b. Disconnect light wire leads.

NOTE: On Coin Meter Models, the run light white lead must be joined to the wire harness white lead using a double spade connector. Remove the single spade lug from the replacement run light white wire.

c. Compress locking tabs on sides of light and push light out through front of control panel. Refer to *Figure 2* for Coin Drop Models or *Figure 3* for Manual Timer Models.

NOTE: Refer to wiring diagram when rewiring light.

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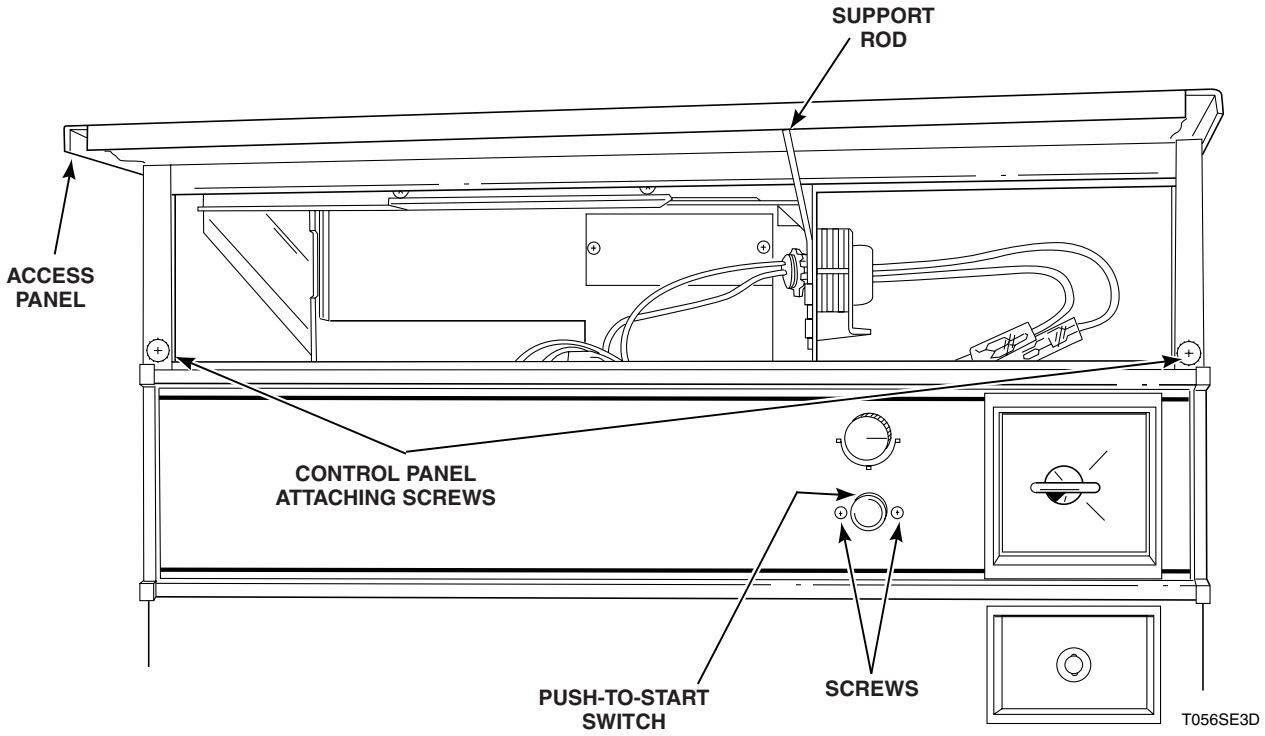

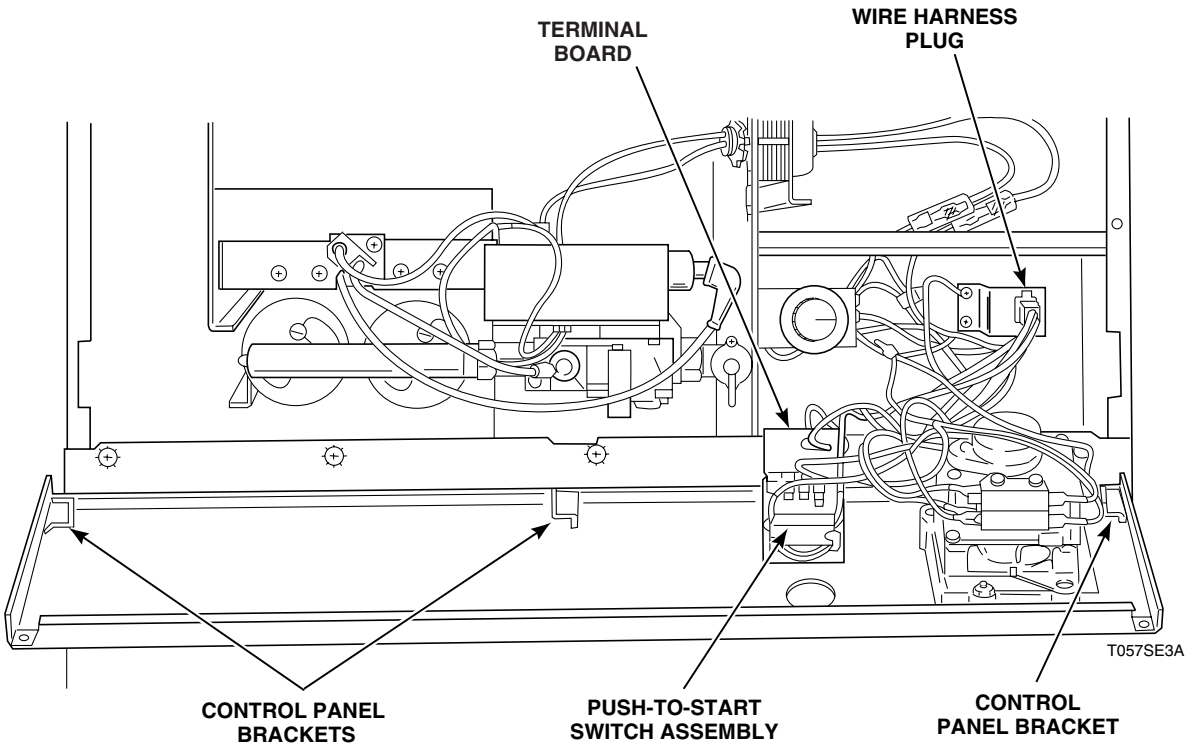

Figure 1

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

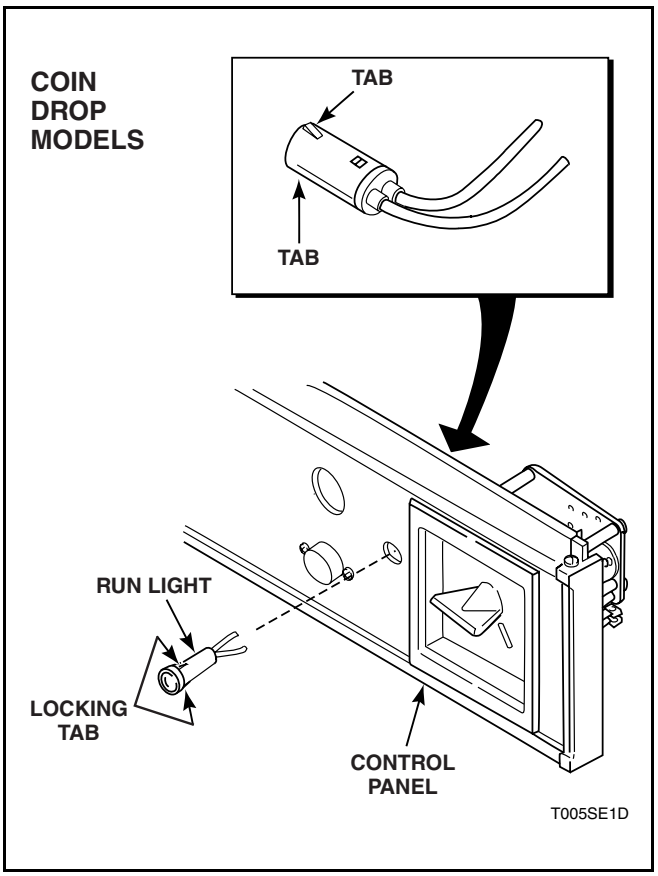

Figure 2

57. RELAY (MANUAL TIMERS MODELS)
a. Remove control panel.
b. Remove two screws holding relay to bracket. Refer to *Figure 3*.
c. Disconnect wires from relay.

NOTE: Refer to wiring diagram when rewiring relay.

58. RESISTOR
(Models with 208-240Volt/60Hertz Control Circuit)
a. Remove control panel.
b. Disconnect resistor leads. Refer to *Figure 3*.

NOTE: Refer to wiring diagram when rewiring resistor.

59. COOLING OR DRYING TIMER
(New Style)
a. Remove control panel.
b. Pull timer knob off timer shaft. Refer to *Figure 3*.
c. Remove three screws holding timer to control panel or mounting bracket.
d. Remove wires from timer terminal board, and timer motor lead from terminal block.

IMPORTANT: Be sure barrier is installed in proper position when reinstalling drying timer. If either timer is a Robert Shaw timer a barrier must be used. If both timers are Mallory or Greenwald timers, barrier may be discarded.

NOTE: Refer to wiring diagram when rewiring timer.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

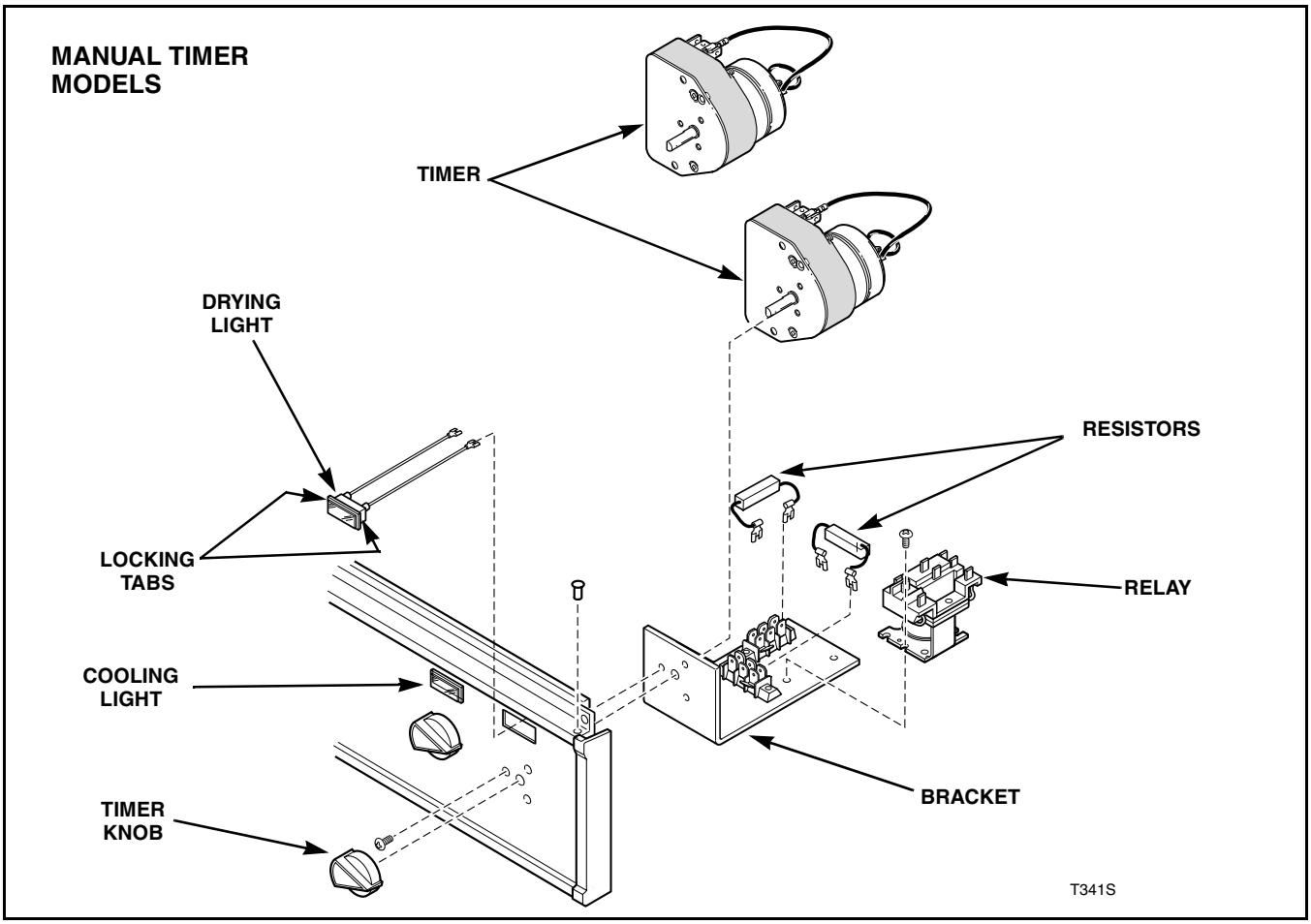

Figure 3

60. COOLING OR DRYING TIMER MOTOR (Old Style Timers)

NOTE: Cooling and drying timers used prior to January 1985 were supplied by Greenwald and have serviceable timer motors. After January 1985, Robert Shaw or Mallory timers are used, which do not have serviceable timer motors. These later timers must be replaced as complete assemblies if the timer motor fails.

a. Remove control panel.
b. Disconnect motor leads.
c. Remove screws holding timer motor to mounting bracket. Refer to *Figure 4.*

NOTE: Refer to wiring diagram when rewiring timer motor.

d. Replacing Greenwald timer assembly with Mallory timer assembly:
   (1) Remove Greenwald timer assembly.
   (2) Connect timer terminal wire 3 to terminal board terminal B.
   (3) Connect timer terminal 5 wire to terminal board terminal C.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

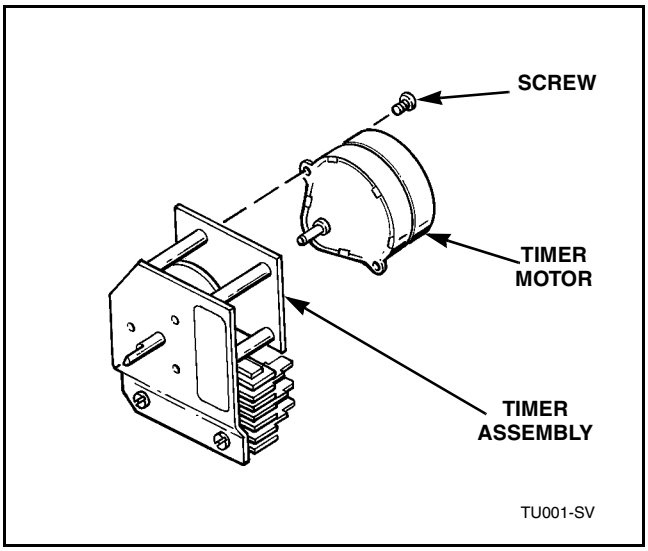

Figure 4

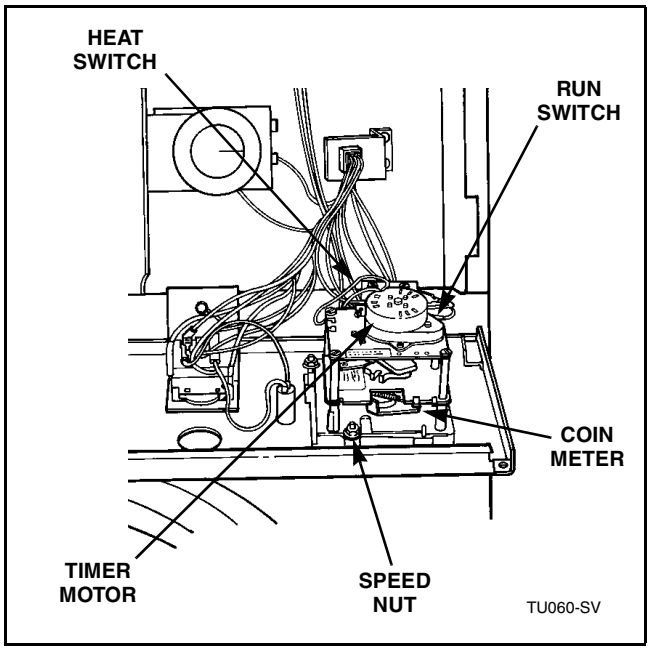

Figure 5

61. COIN METER

Refer to *Figure 5.*

a. Remove control panel.

b. Disconnect wires from heat and run switches.

c. Cut remaining motor wire and joining white wire at wire nut.

d. Remove four speed nuts holding coin meter to coin meter frame.

NOTE: Refer to wiring diagram when rewiring coin meter. Connect wires cut in step "c" above with new wire nut.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

62. COIN METER TIMER MOTOR

a. Remove control panel.
b. Remove two screws holding motor to mounting bracket. Refer to *Figure 6.*
c. Hold cam and drive fork against inside face of motor mounting bracket and pull motor free of cam and drive fork.
d. Disconnect motor leads.
e. Slide cam and drive fork out from under motor mounting bracket.

NOTE: Refer to wiring diagram when rewiring timer motor.

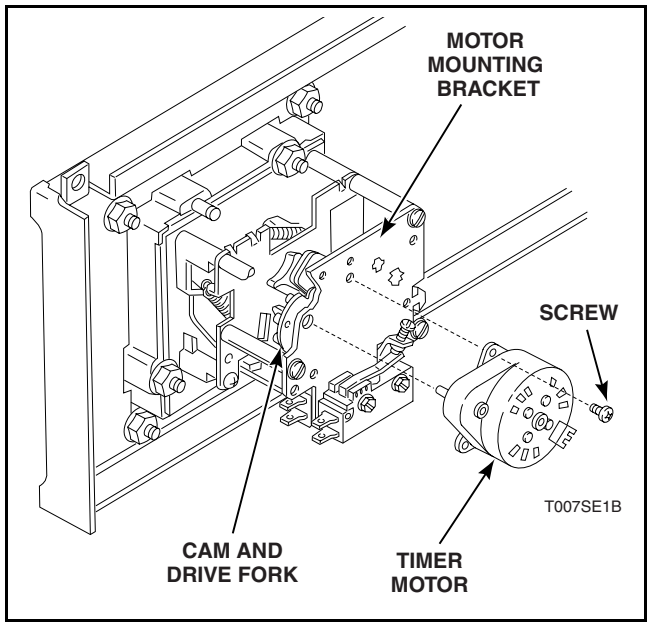

Figure 6

63. COIN METER RUN OR HEAT SWITCH
Refer to *Figure 7.*

a. Remove control panel.
b. Disconnect wires from switches on timer.
c. Hold switches and actuating bracket under switches tightly together with one hand while removing two screws holding switches to timing motor mounting bracket. Carefully remove the switches and actuating bracket parts.
d. Assemble the two switches and the two parts making up the switch actuating bracket.
e. Actuate the switches a number of times by manually pressing the actuating plate against the switch lever and plunger to ensure that the actuating parts do not bind. If binding occurs, reposition the actuating plate slightly until the binding stops.

NOTE: Refer to wiring diagram when rewiring switches.

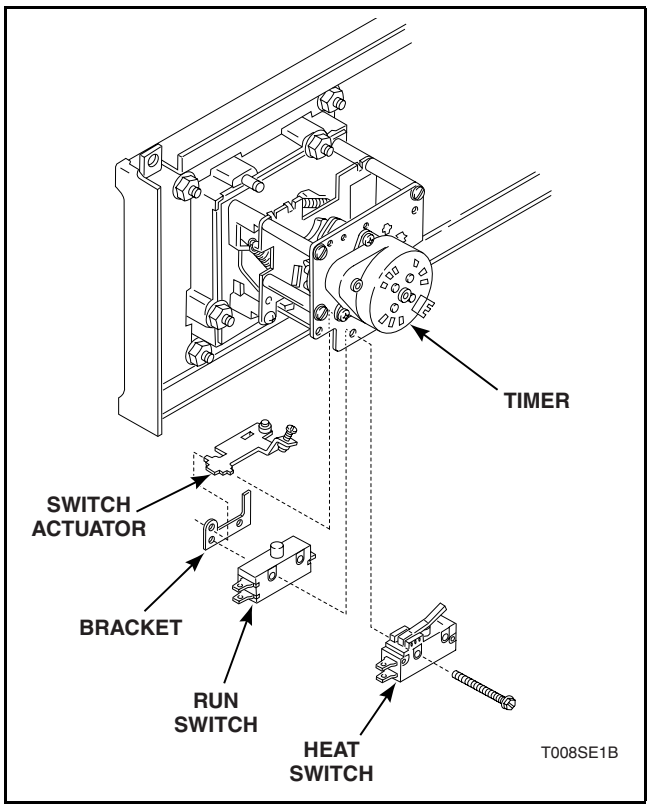

Figure 7

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

64. CONTROL THERMOSTAT

a. Remove control panel.
b. Pull knob off thermostat. Refer to *Figure 8.*
c. Disconnect wires from thermostat.
d. Remove two screws holding thermostat to bracket.
e. Remove wire-way attaching screws. Refer to *Figure 9.*
f. Remove screws, wire clips and/or retaining straps securing thermostat sensing tube in wire-way.
g. **Later Models:** Remove junction box cover attaching screws. Refer to *Figure 9.*

IMPORTANT: When reinstalling thermostat, be sure to install all screws and wire clips and replace all retaining straps removed in steps "f" and "g".

h. Unlock and remove lint panel.
i. Spread locking tabs on sensing probe bracket and disengage probe from bracket. Refer to *Figure 10.*

IMPORTANT: When reinstalling thermostat, be sure to secure sensing probe with locking tabs on bracket. Refer to *Figure 10*.

j. Carefully remove thermostat, tube and probe.

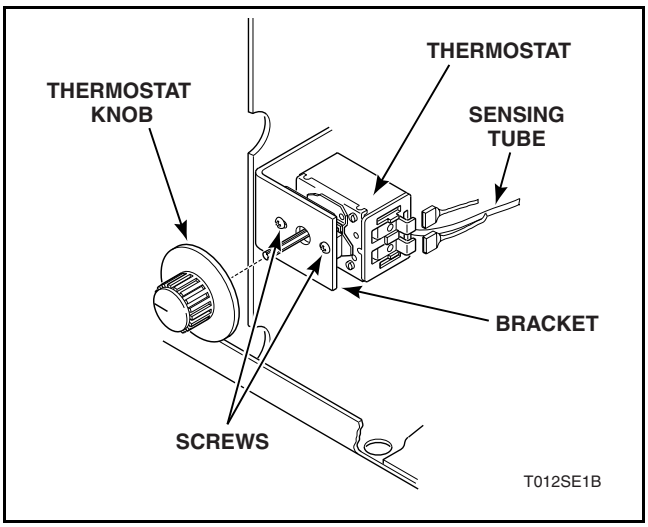

Figure 8

IMPORTANT: Do not kink sensing tube when installing thermostat.

NOTE: Refer to wiring diagram when rewiring thermostat.

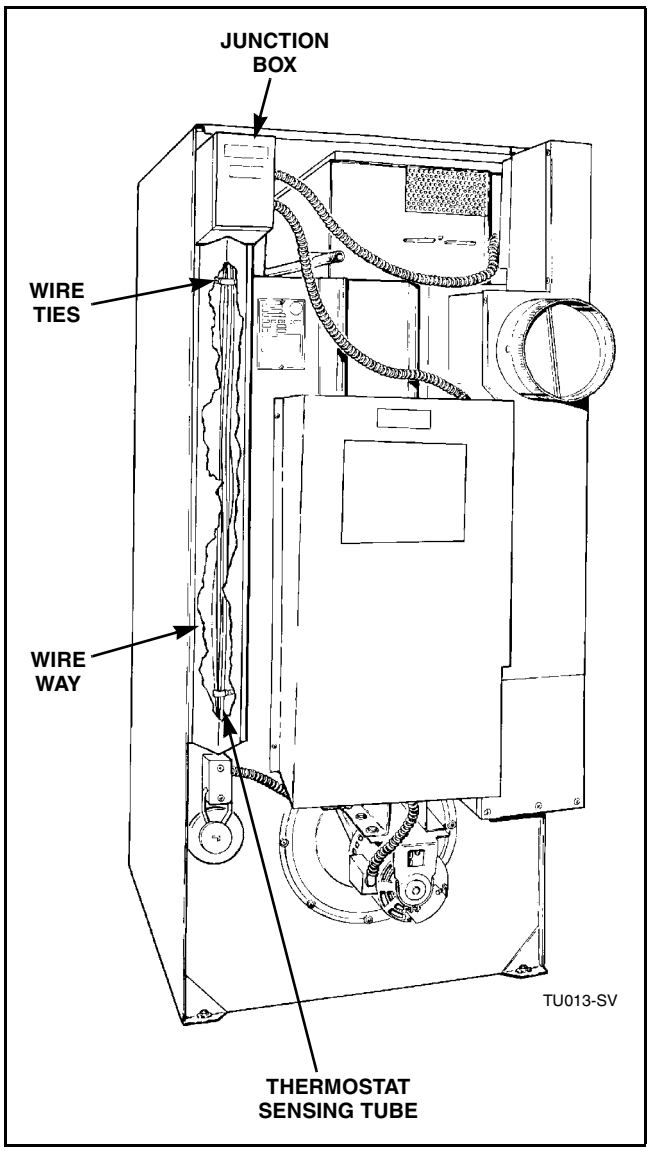

Figure 9

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

65. TRANSFORMER
(Automatic Pilot Ignition Models)
Refer to *Figure 11.*

a. Remove control panel.
b. Disconnect transformer wires at electronic package.
c. Disconnect remaining wires from transformer at connectors.

NOTE: Refer to wiring diagram when rewiring transformer.

d. Remove nut holding transformer to cabinet.

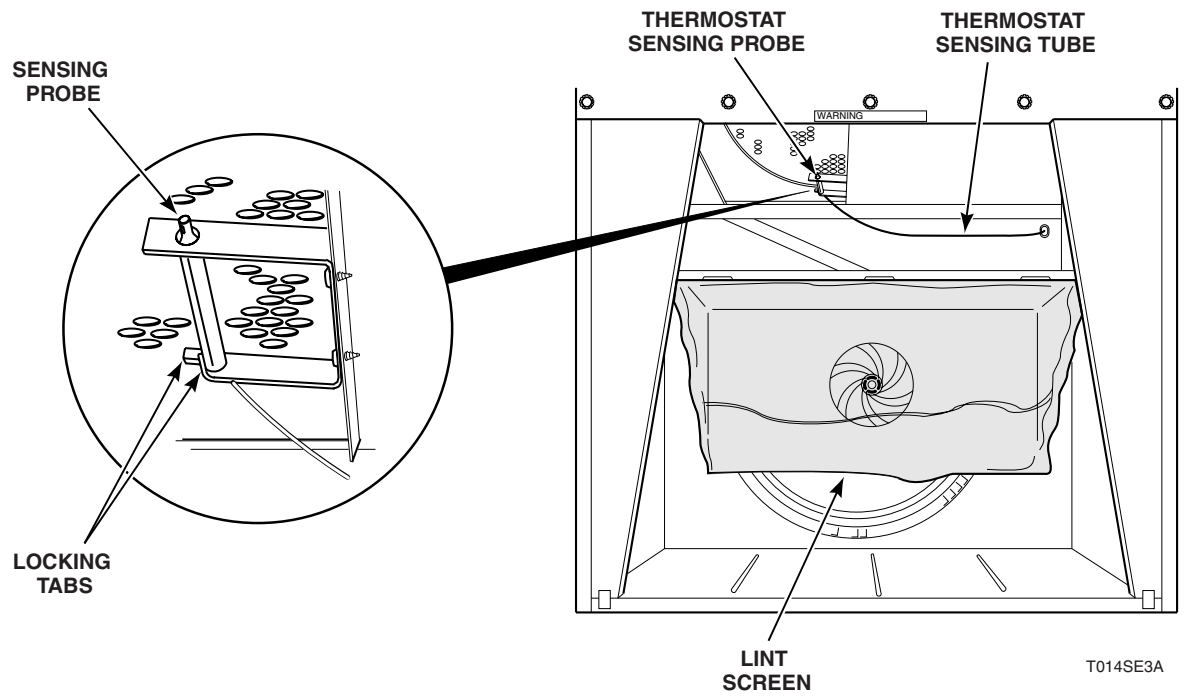

Figure 10

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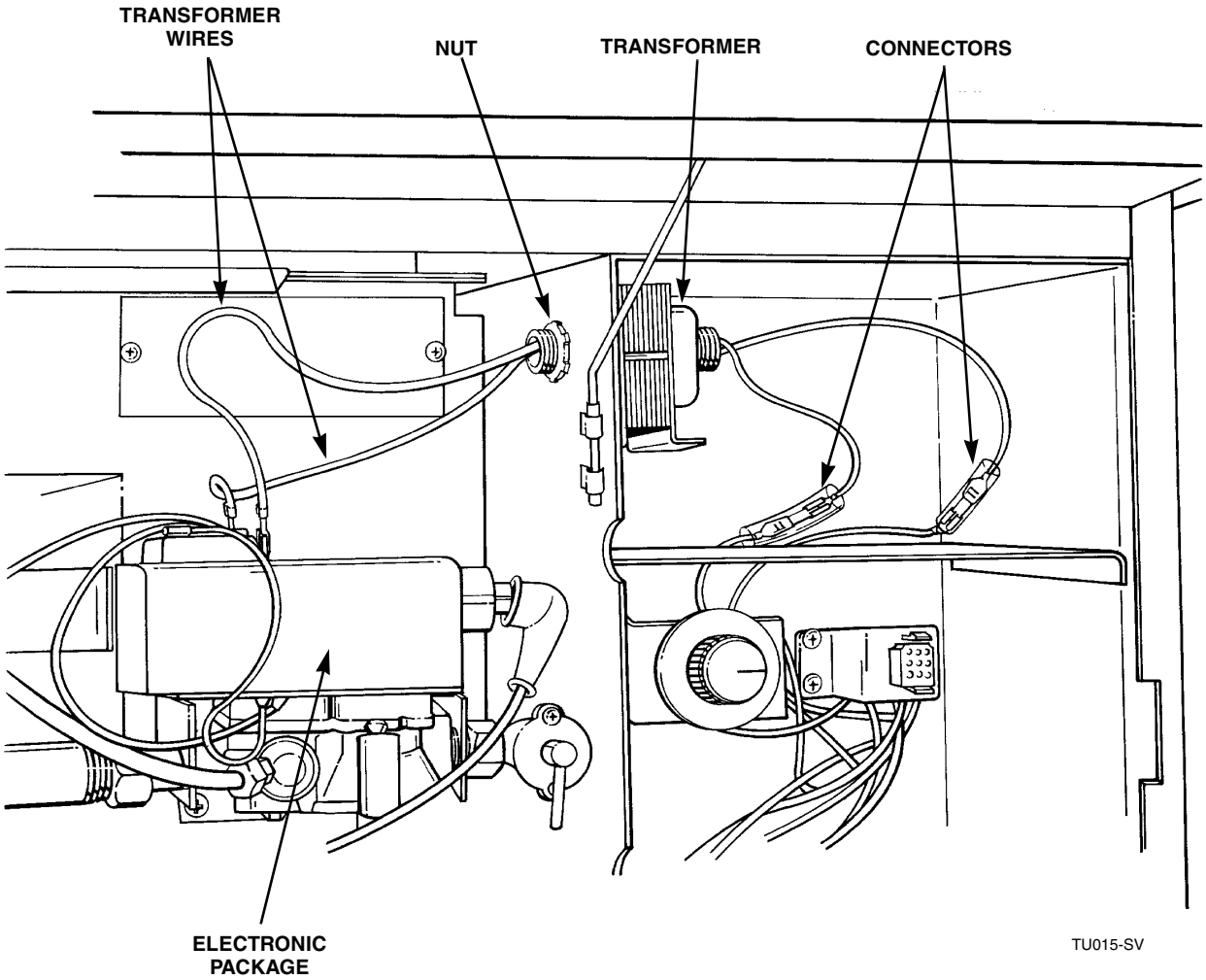

Figure 11

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

66. GAS VALVE ASSEMBLY
(Automatic Pilot Ignition Models)
Refer to *Figure 12* and *Figure 14*.

a. Remove control panel.
b. Close gas shut-off valve.
c. Disconnect all wires from gas valve terminals and disconnect gas valve union nuts.
d. Disconnect igniter wire and sensor wire from electronic package.
e. Disconnect pilot tube from gas valve.

IMPORTANT: Purge air in the gas service line by operating the tumbler in drying mode. Use pipe compound resistant to action of L.P. Gas on all pipe threads.

WARNING

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

f. Remove screws holding gas valve and bracket to stove assembly.
g. Remove spudholder and nipple from left side of valve and plug from right side of valve.

NOTE: Refer to wiring diagram when rewiring gas valve.

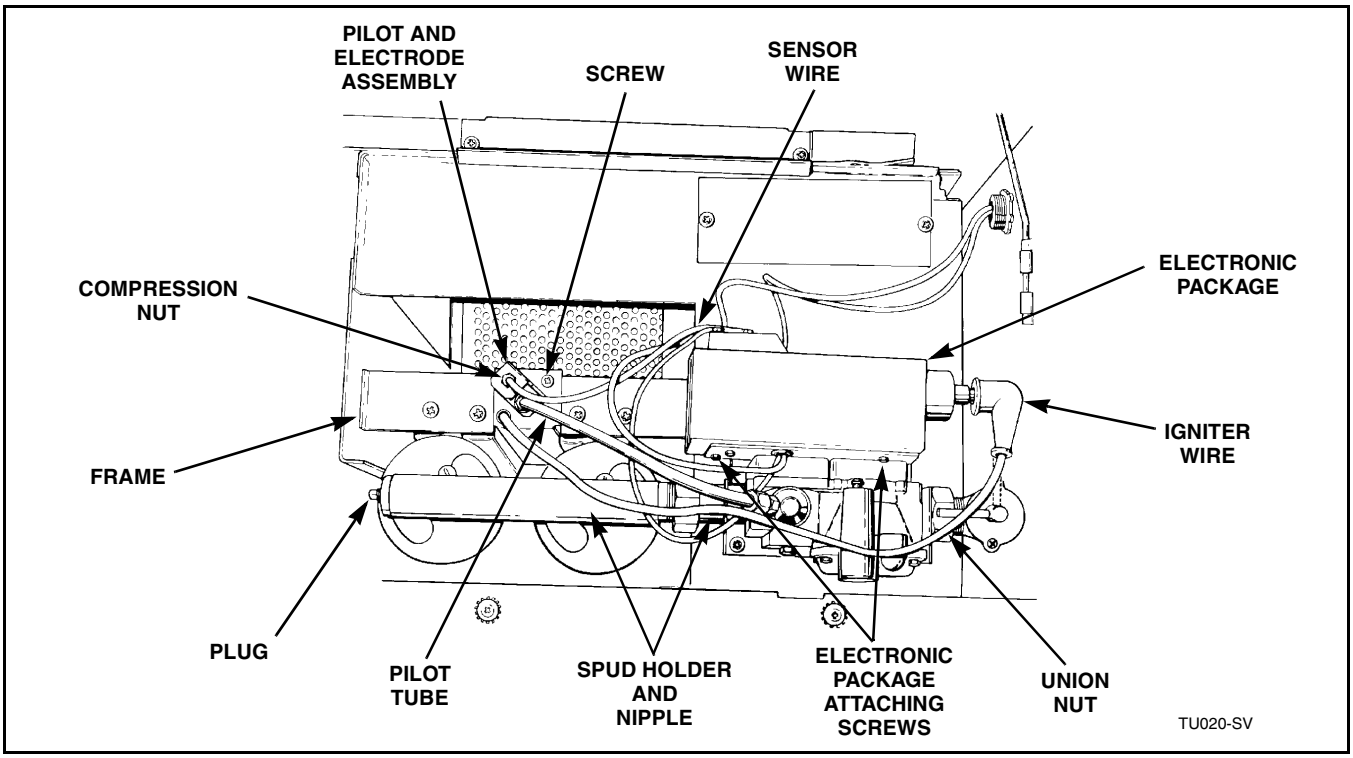

Figure 12

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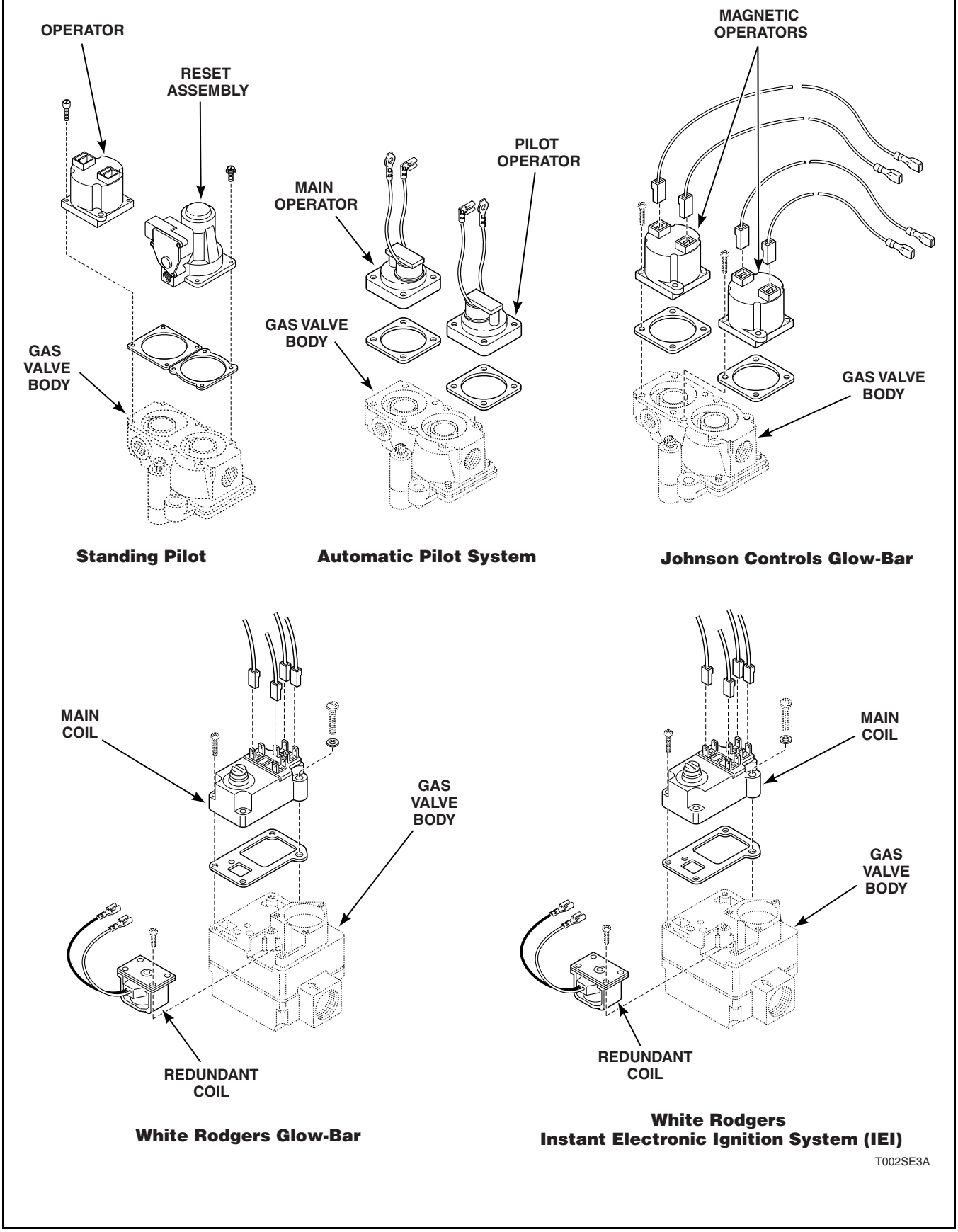

Figure 13

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

67. ELECTRONIC PACKAGE
(Automatic Pilot Ignition Models)
a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14.*
c. Disconnect igniter wire and sensor wire from electronic package.
d. Remove two screws holding electronic package to gas valve. Refer to *Figure 12.*
e. Disconnect two operator wires from electronic package terminals.

NOTE: Refer to wiring diagram when rewiring electronic package.

68. MAIN OR PILOT OPERATOR
(Automatic Pilot Ignition Models)
a. Remove electronic package.
b. Remove screws holding main or pilot operator to gas valve body. Refer to *Figure 13.*

69. GAS VALVE
(Standing Pilot Models)
Refer to *Figure 14*.
a. Remove control panel.
b. Close gas shut-off valve.
c. Disconnect all wires from gas valve terminals and disconnect gas valve pipe unions.
d. Disconnect thermocouple and pilot tube from gas valve.

IMPORTANT: Purge air in the gas service line by operating the tumbler in drying mode. Use pipe compound resistant to action of L.P. Gas on all pipe threads.

WARNING

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

e. Remove screws holding gas valve and bracket to stove assembly.
f. Remove spudholder from left side of valve and plug from right side of valve.

70. OPERATOR
(Standing Pilot Models)
a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14.*
c. Disconnect wires from operator terminals
d. Remove screws holding operator to gas valve body. Refer to *Figure 13.*

NOTE: Refer to wiring diagram when rewiring gas valve operator.

71. RESET ASSEMBLY
(Standing Pilot Models)
a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14.*
c. Disconnect pilot tube and thermocouple from reset assembly.
d. Remove screws holding reset assembly to gas valve. Refer to *Figure 13*.

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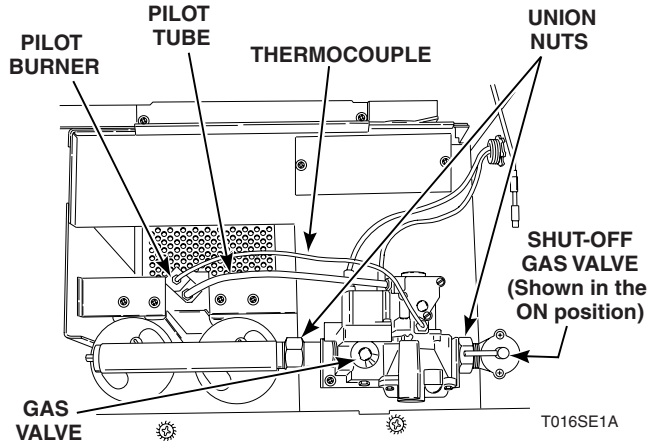
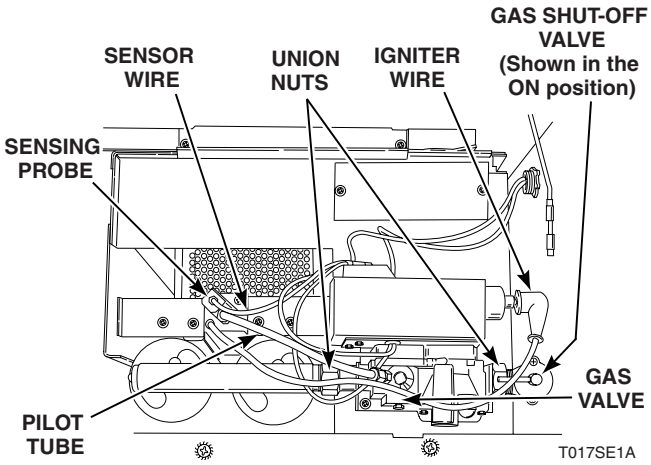
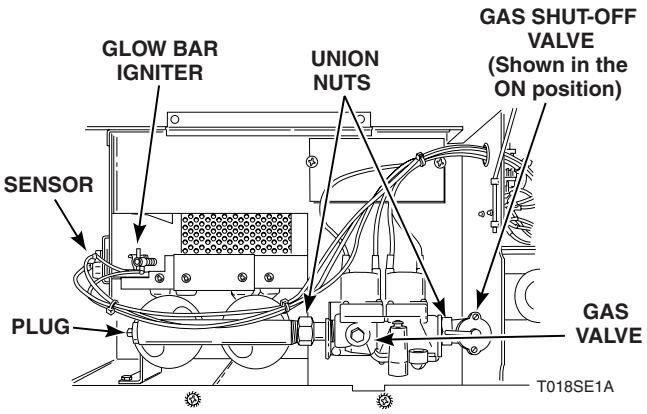


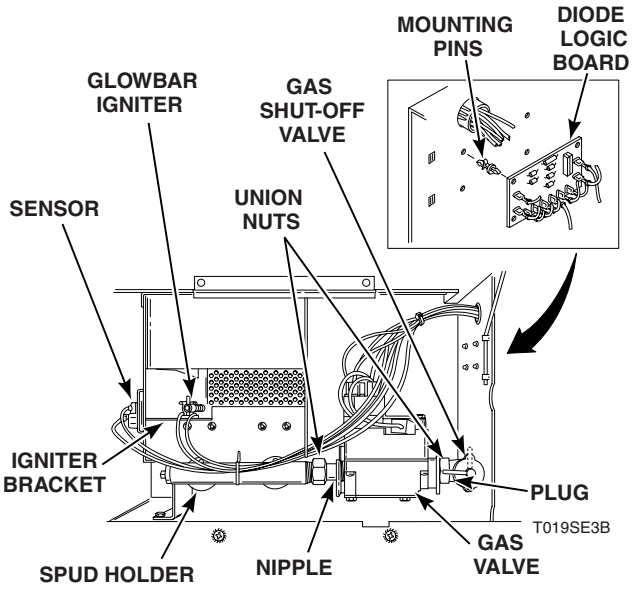
Standing Pilot Burner



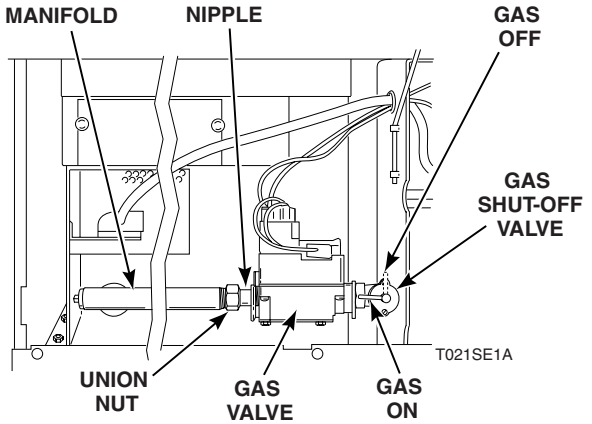
Automatic Pilot Ignition Burner

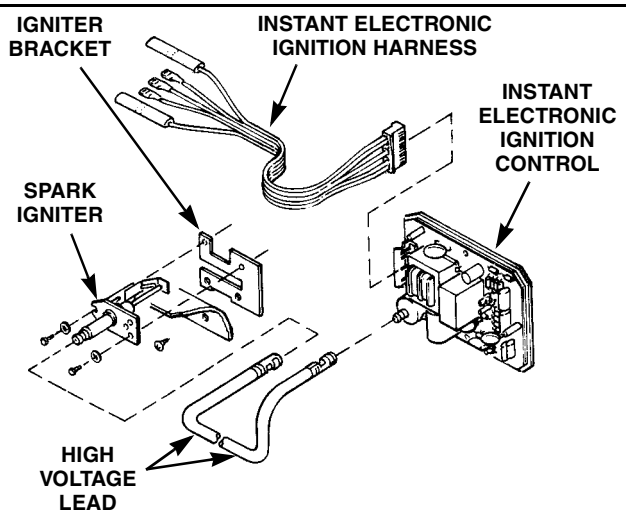


Johnson Controls Glow-Bar Ignition Burner



White Rodgers Glow-Bar Ignition Burner





Instant Electronic Ignition Burner

Figure 14

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

72. GAS VALVE
(Johnson Controls Glow-Bar Models)
Refer to *Figure 14.*
a. Remove control panel.
b. Close gas shut-off valve.
c. Disconnect all wires from gas valve terminals and disconnect gas valve union nuts.
d. Remove screws holding gas valve and bracket to stove assembly.
e. Remove spudholder from left side of valve and plug from right side of valve.

NOTE: Refer to wiring diagram when rewiring gas valve.

IMPORTANT: Purge air in the gas service line by operating the tumbler in drying mode. Use pipe compound resistant to action of L.P. Gas on all pipe threads.

WARNING

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

73. MAGNETIC OPERATORS
(Johnson Controls Glow-Bar Models)
a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14.*
c. Disconnect wires from magnetic operator terminals.
d. Remove screws holding magnetic operators to gas valve body. Refer to *Figure 13.*

NOTE: Refer to wiring diagram when rewiring magnetic operators.

74. GAS VALVE
(White Rodgers Glow-Bar Models)
Refer to *Figure 14.*
a. Remove control panel.
b. Close gas shut-off valve.
c. Disconnect all wires from gas valve terminals and disconnect gas valve union nuts.
d. Remove screws holding gas valve and bracket to stove assembly.
e. Remove gas valve from mounting bracket.
f. Remove spudholder and nipple from left side of valve and plug from right side of valve.

IMPORTANT: Purge air in the gas service line by operating the tumbler in drying mode. Use pipe compound resistant to action of L.P. Gas on all pipe threads.

NOTE: Refer to wiring diagram when rewiring gas valve.

75. DIODE LOGIC BOARD
(White Rodgers Glow-Bar Models)
Refer to *Figure 14.*
a. Remove control panel.
b. Disconnect wires from diode logic board terminals.
c. Compress tabs on back ends of diode logic board standoffs and push pins through holes in cabinet wall to free diode logic board.

NOTE: Refer to wiring diagram when rewiring diode logic board.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

76. MAIN COIL
(White Rodgers Glow-Bar Models)

NOTE: The redundant coil cannot be purchased separately. Replace the complete gas valve.

a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14*.
c. Disconnect wires from main coil terminals.
d. Remove screws holding main coil to gas valve. Refer to *Figure 13*.

NOTE: Refer to wiring diagram when rewiring gas valve main coils.

77. IGNITER AND BRACKET
(Glow-Bar Models)
Refer to *Figure 14*.
a. Remove control panel.
b. Insert tips of 90 degree Tru-Arc pliers into holes in each igniter mounting clip and spread clips just far enough for igniter removal.

IMPORTANT: Use extreme care when handling the igniter as it is very fragile. Handle igniter by grasping the white ceramic portion only. Do not handle the silicon of the igniter with hands or allow any oil, grease, or other foreign material to contaminate it. Hairline cracks, oil, grease, or other impurities will cause igniter to burn out.

c. Remove screw holding igniter bracket to stove assembly.
d. Disconnect igniter wires from diode logic board (White Rodgers) or relay (Johnson Controls).

78. SENSOR
(Glow-bar Models)
a. Remove control panel.
b. Disconnect wires from sensor. Refer to *Figure 14*.
c. Remove screw holding sensor to side of stove assembly.

NOTE: Refer to wiring diagram when rewiring sensor.

79. IGNITER
(Instant Electronic Ignition Models)
a. Remove control panel.
b. Disconnect high voltage lead from igniter.
c. Remove two screws attaching igniter bracket to stove assembly.

80. IGNITION CONTROL
(Instant Electronic Ignition Models)
a. Remove control panel.
b. Disconnect wire harness.
c. Remove high voltage lead.

IMPORTANT: Remove circuit board and plastic back as a unit. Handle ignition control unit by sides of board only. Do not contact circuit boards with hands or metal objects. Place unit in clean, dry area away from work area to avoid damage. Do not attempt field repair of the ignition control unit. Attempted repair or tampering with the ignition control unit will void its warranty.

d. Remove two screws attaching ignition control unit to cabinet frame.
e. Remove ignition control unit.

81. GAS VALVE
(Instant Electronic Ignition Models)
a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14*.
c. Disconnect all wires from gas valve terminals and disconnect gas valve pipe unions.
d. Remove screw holding gas valve bracket to stove.
e. Remove spudholder and manifold from left side of valve and plug from right side of valve.
f. Remove gas valve from mounting bracket.

IMPORTANT: Purge air in the gas service line by operating the tumbler in drying mode. Use pipe compound resistant to action of L.P. Gas on all pipe threads.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

WARNING

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

82. MAIN COIL
(Instant Electronic Ignition Models)

NOTE: The redundant coil cannot be purchased separately. Replace complete gas valve.

a. Remove control panel.
b. Close gas shut-off valve. Refer to *Figure 14*.
c. Disconnect wires from main coil terminals.
d. Remove screws holding main coil to gas valve. Refer to *Figure 13*.

83. BURNER TUBE
Refer to *Figure 14*.
a. Remove control panel.
b. Close gas shut-off valve.
c. Disconnect union nut attaching nipple to spudholder and remove spudholder.
d. Remove screws holding gas valve bracket to stove assembly.
e. Remove screws holding burner tubes to stove frame and remove burner tubes.

WARNING

To reduce risk of fire or explosion, check pipe connections for gas leaks with a non-corrosive leak detection fluid. Do not use an open flame to check for gas leaks!

W310

IMPORTANT: Make sure that spudholder and orifices are positioned such that gas will be injected directly down the center of the burner.

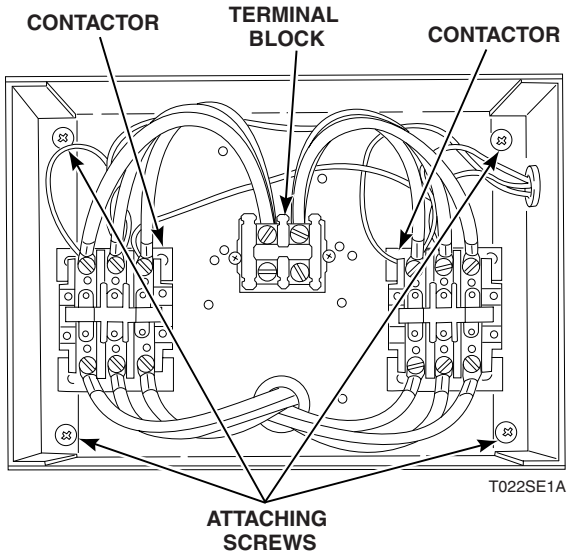

Figure 15

84. CONTACTORS AND TERMINAL BLOCK
(Electric Models)

NOTE: Contactors and terminal blocks are located in contactor box at the rear of the tumbler.

a. Remove screw holding cover to contactor box and remove cover.
b. Remove wires from contactor terminals and terminal blocks.

NOTE: Refer to wiring diagram when rewiring contactors or terminal blocks.

c. Remove screws holding contactor to box.
d. Remove two screws holding terminal block to box. Refer to *Figure 15*.

NOTE: OLDER MODELS - Terminal block consists of two terminal section (one phase) or three terminal sections (three phase) and an end piece snapped together.

NEWER MODELS - Use a 3 pole terminal block.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

85. HEATER ELEMENT
(Electric Models)
Refer to *Figure 16*.

NOTE: Remove heater element from the rear of the tumbler.

a. Remove two screws and lift hood assembly off heater housing.
b. Remove nuts, disconnect wires and buss bars from element terminals.

NOTE: Refer to wiring diagram when rewiring element terminals.

c. Remove screws attaching element to rear of heater housing.
d. Slide element toward front of tumbler and carefully lift element up and out of heater housing.

NOTE: Each tumbler is equipped with three elements. Remove each element individually.

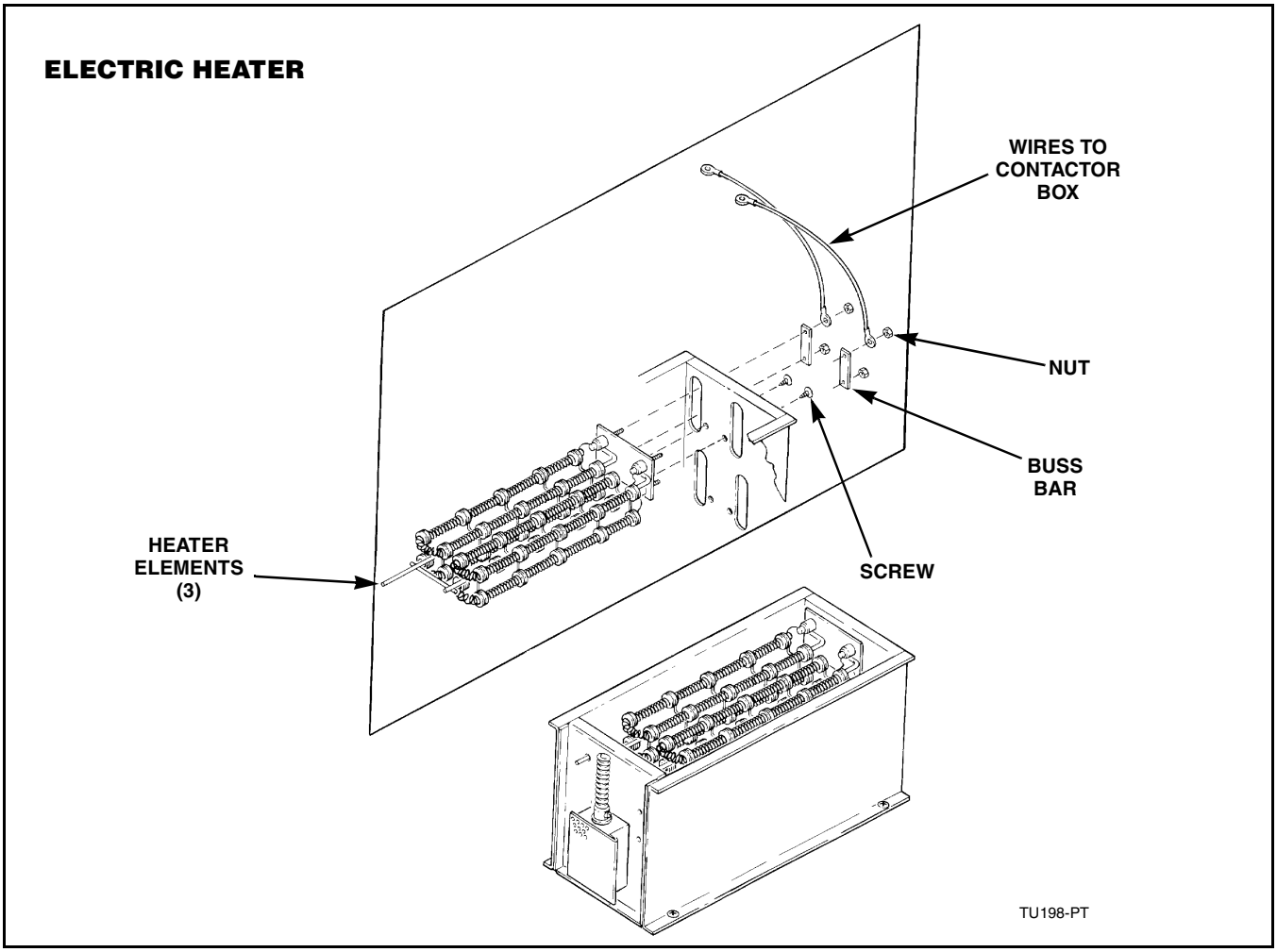

Figure 16

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

86. STOVE HIGH LIMIT THERMOSTAT (Gas Models)

NOTE: Steps "a" through "d", and "f" apply only to energy saver models. The stove high limit thermostat is more readily accessible on non-energy saver models.

a. Remove control panel.
b. Remove screw holding cover plate to wire-way (older models); or, remove screw holding cover to junction box or airflow switch box (older models). Remove cover. Refer to *Figure 17*.
c. Disconnect stove high limit thermostat wires in wire-way or in junction box.
d. Remove conduit nut from BX cable on inside of wire-way or junction box. Refer to *Figure 17*.
e. Remove two screws holding thermostat and bracket to rear side of burner. Refer to *Figure 17*.

NOTE: This will allow the conduit to follow through between burner and cabinet when thermostat and bracket assembly are slid toward front of tumbler (energy saver models only).

f. Carefully slide assembly, with conduit, toward front of tumbler far enough to permit removal of complete assembly from burner.
g. Remove two screws holding cover to mounting bracket. Refer to *Figure 18*
h. Disconnect wires from thermostat.
i. Remove two screws holding thermostat to mounting bracket. Refer to *Figure 18*.

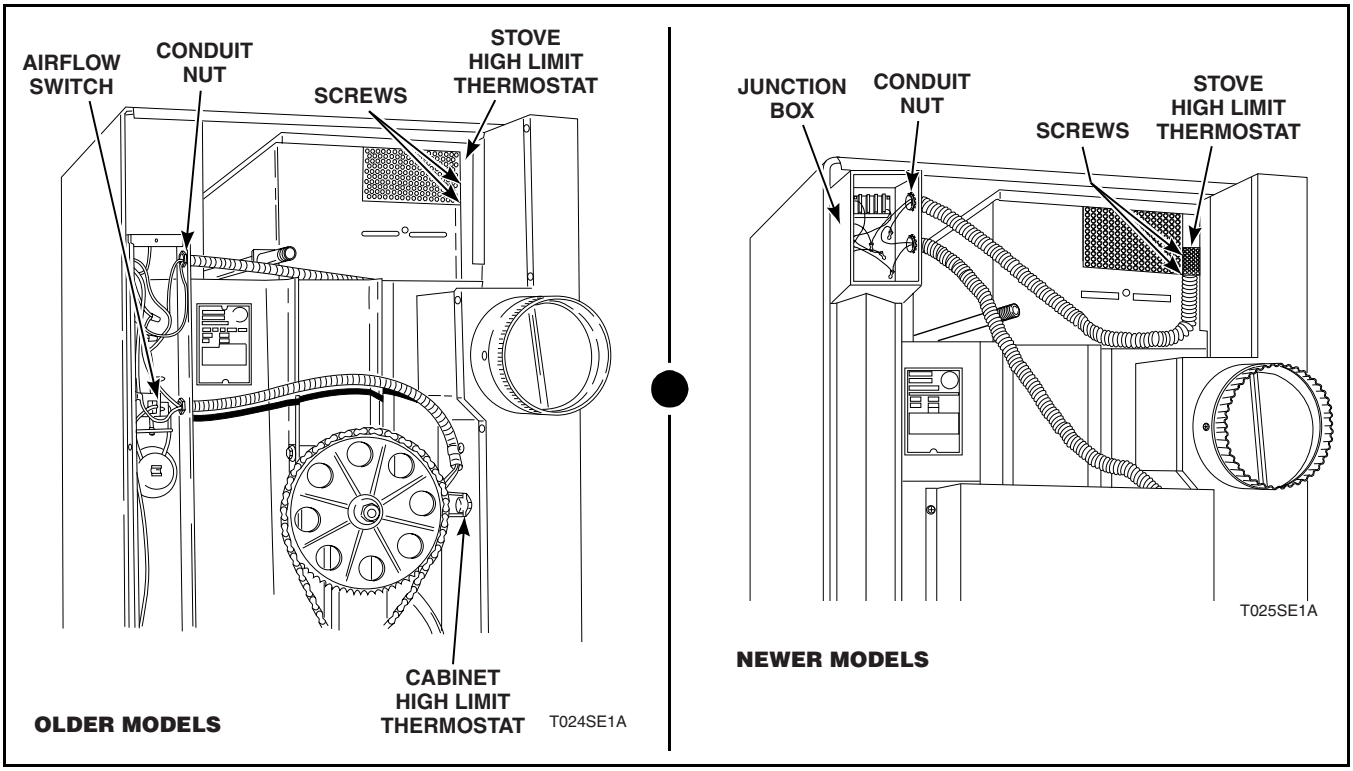

Figure 17

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

87. CABINET HIGH LIMIT THERMOSTAT

(Energy Saver Gas Models)

a. Disconnect electrical service to tumbler.
b. Remove chain guard.
c. Disconnect wires from thermostat.
d. Remove two screws holding thermostat to vertical duct.

(Non-Energy Saver Gas Models)
Refer to *Figure 19*.

a. Disconnect electrical service to tumbler.
b. Remove lint compartment door.
c. Remove two screws holding thermostat mounting bracket to cylinder shroud.
d. Remove two screws holding cover to mounting bracket.
e. Disconnect two wires from thermostat.
f. Remove two screws holding thermostat to mounting bracket.
g. To remove thermostat wire assembly.
   (1) Repeat steps “d” through “l”, above.
   (2) Pull wires through bushing in thermostat mounting bracket and then push wire out through hole in back of lint compartment.
   (3) Remove wire cover and junction box cover from rear of tumbler.
   (4) Disconnect wires from inside of junction box, and pull wires from junction box and wire way.

NOTE: Refer to wiring diagram when reconnecting thermostat wires.

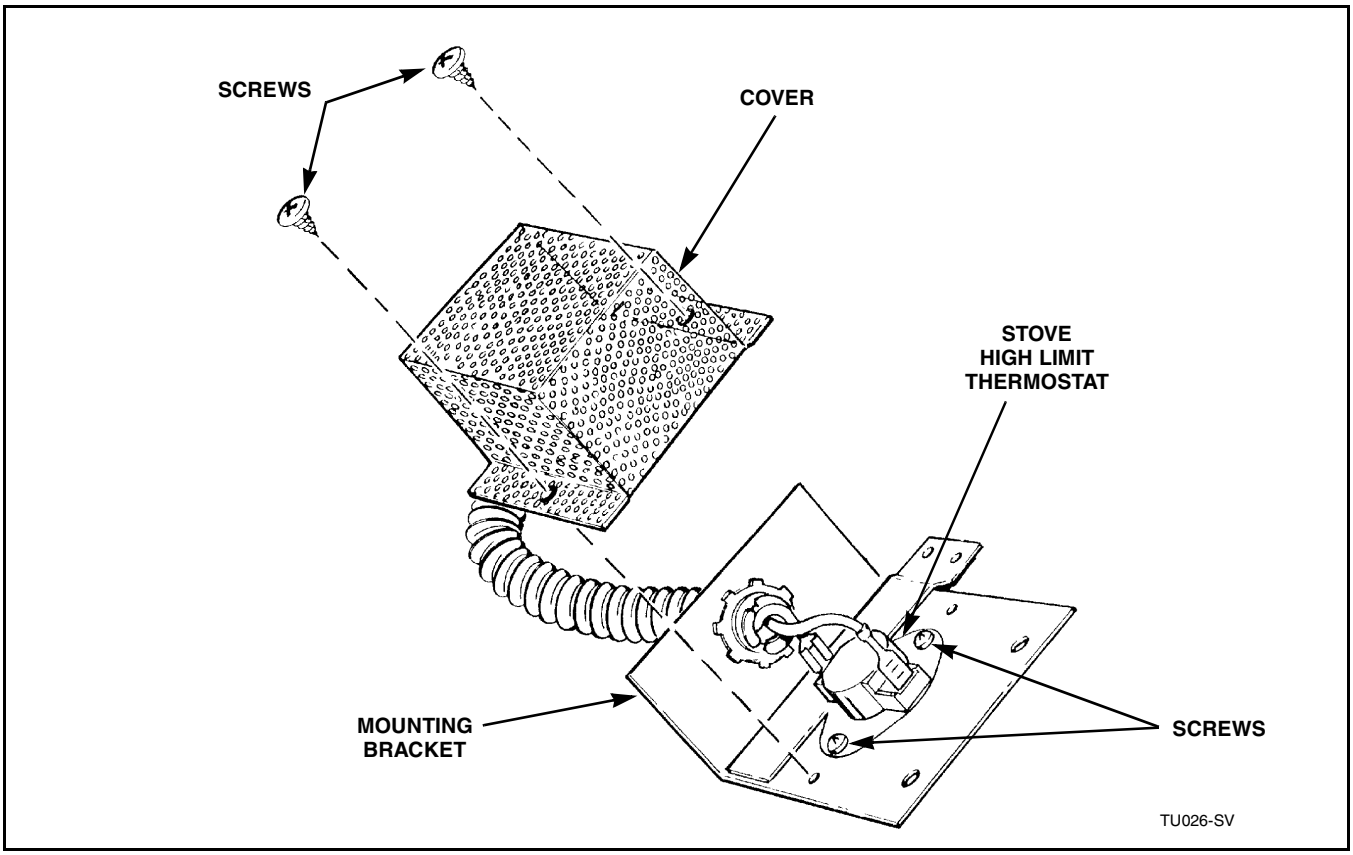

Figure 18

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

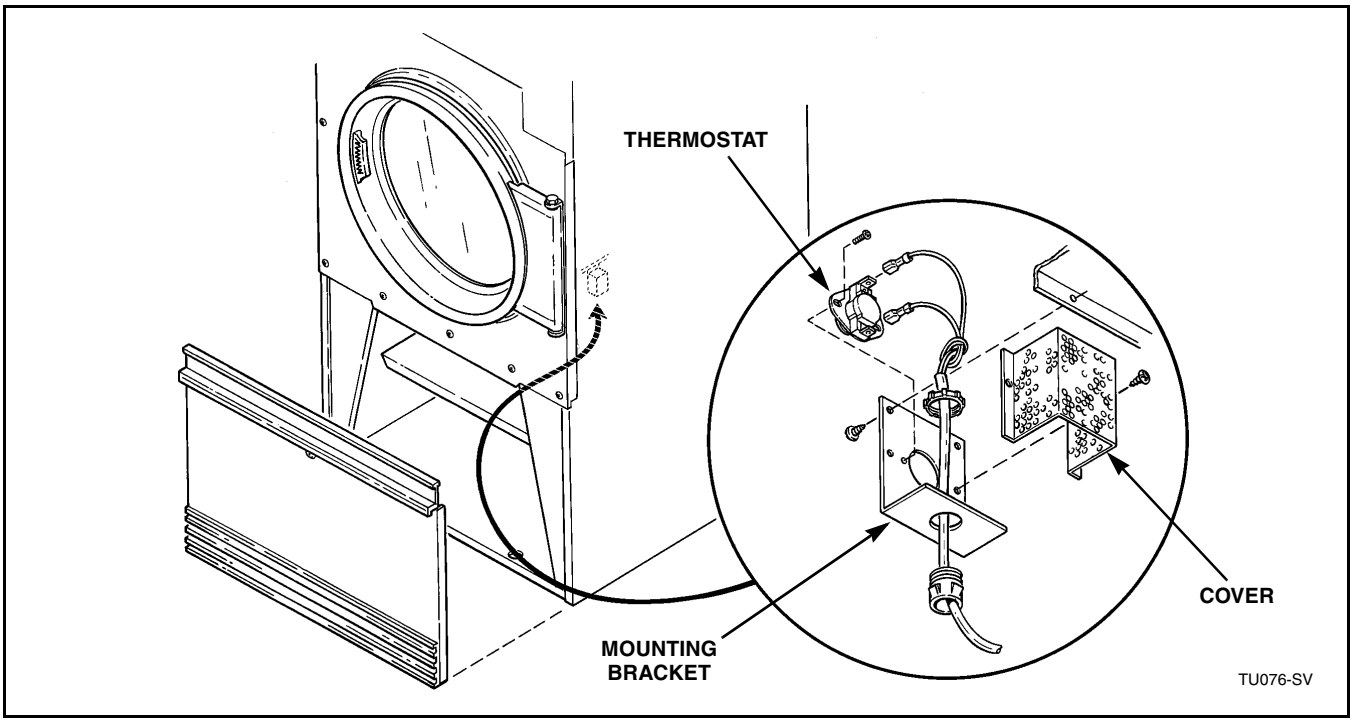

Figure 19

88. HIGH LIMIT THERMOSTAT (Electric Models)

a. Unlock and open access door. Remove cover.
b. Disconnect wires from thermostat.
c. Remove two screws holding thermostat to front of heater housing and remove thermostat. Refer to *Figure 20*.

NOTE: Refer to wiring diagram when rewiring thermostat.

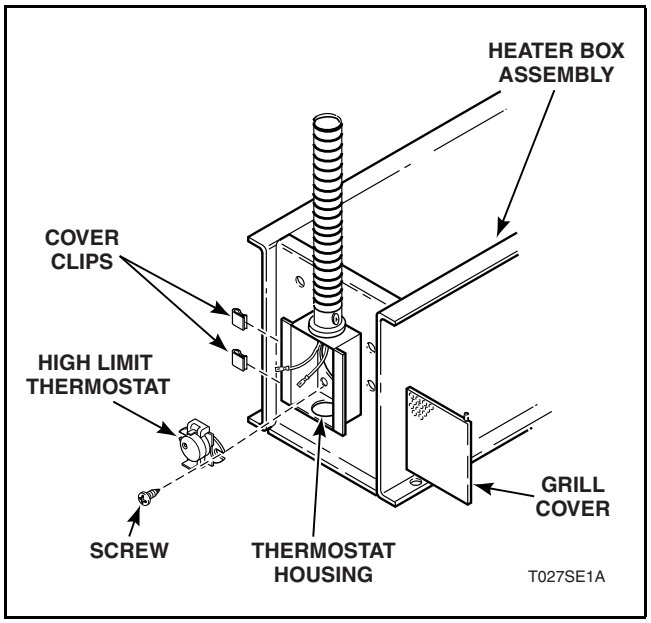

Figure 20

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

89. STEAM COILS

WARNING

Allow steam coils and valve to cool down before attempting any service procedures.

W249

a. Shut off inlet and outlet valves and disconnect flex hoses from steam coils
b. Remove screws holding cover to top of steam heating unit and remove cover.
c. Remove screws holding steam coils to coil frame.
d. Remove steam coils by lifting straight up and out of tumbler.

IMPORTANT: When removing or replacing steam coils, be careful not to damage fins on steam coils.

90. LOADING DOOR ASSEMBLY

Refer to *Figure 21* and *Figure 22*.

a. Open loading door.
b. While supporting door, remove upper hinge bolt holding door to hinge bracket.
c. Remove door from hinge bracket.

NOTE: Nylon washer must be in place on lower pin when reinstalling loading door.

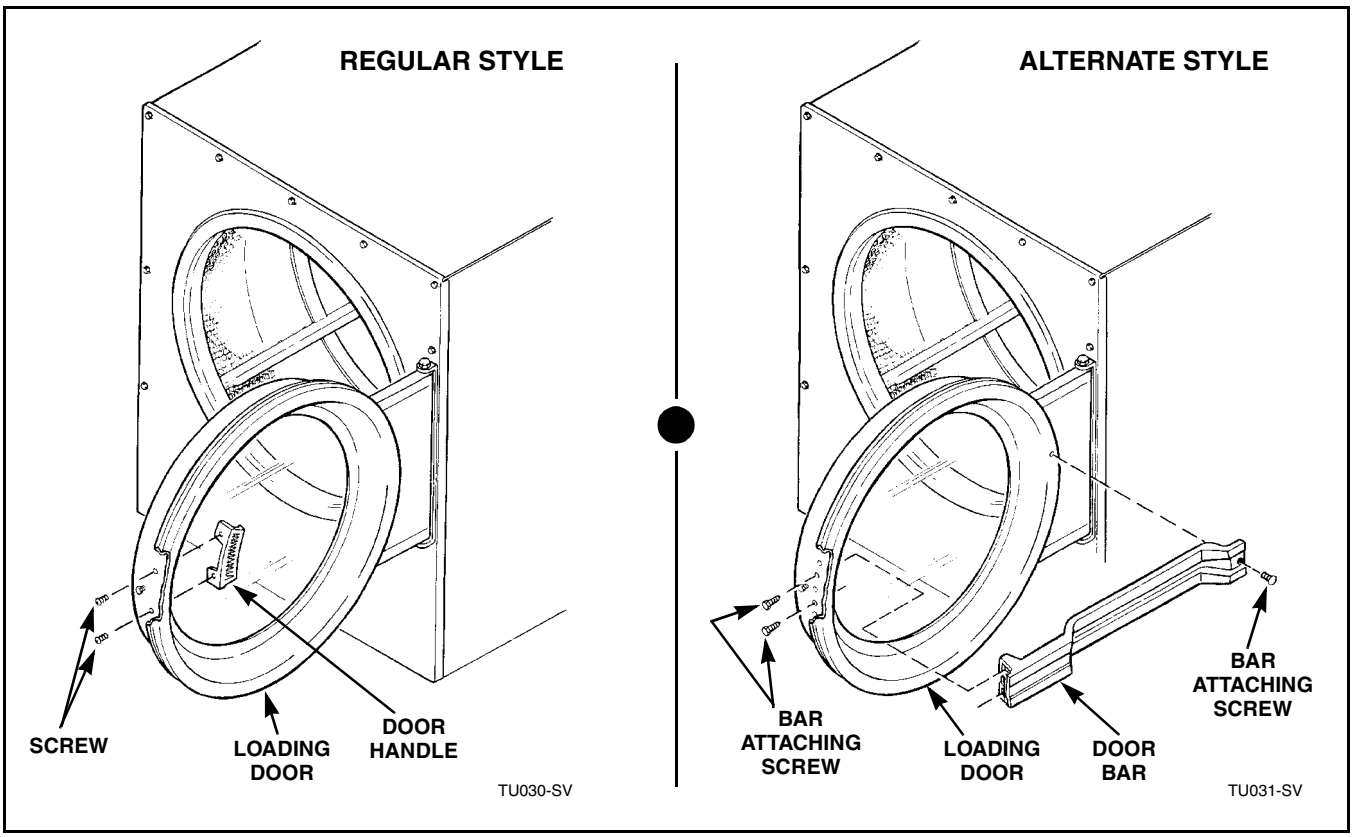

Figure 21

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

91. LOADING DOOR HINGE

a. Open loading door.
b. While supporting door, remove upper hinge bolt holding door to hinge bracket.
c. Remove door from hinge bracket.
d. Remove nuts and screws holding hinge to door frame. Refer to *Figure 23*.

92. LOADING DOOR HANDLE

Refer to *Figure 21*.

a. Open loading door.
b. Remove screws holding door handle to door frame.

93. FRONT PANEL

a. Remove control panel.
b. Unlock, open and remove lint panel. Set aside to prevent damage.
c. Open loading door, support door and remove upper hinge bolt holding door to hinge bracket. Refer to *Figure 22*.

NOTE: Nylon washer must be in place on lower hinge pin when reinstalling door.

d. Remove door from bracket.
e. Support front panel and remove screws (and three speed nuts — newer models only) holding front panel to tumbler cabinet. Refer to *Figure 24*.

NOTE: When removing front panel, lower panel slightly to make sure door switch rod clears hole in cabinet.

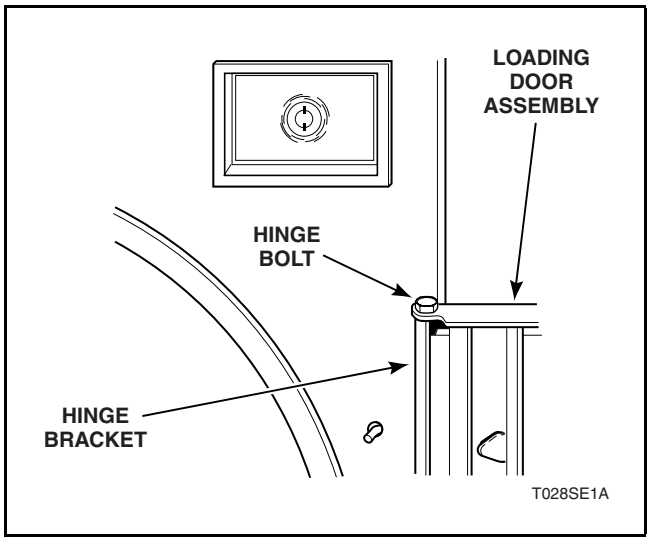

Figure 22

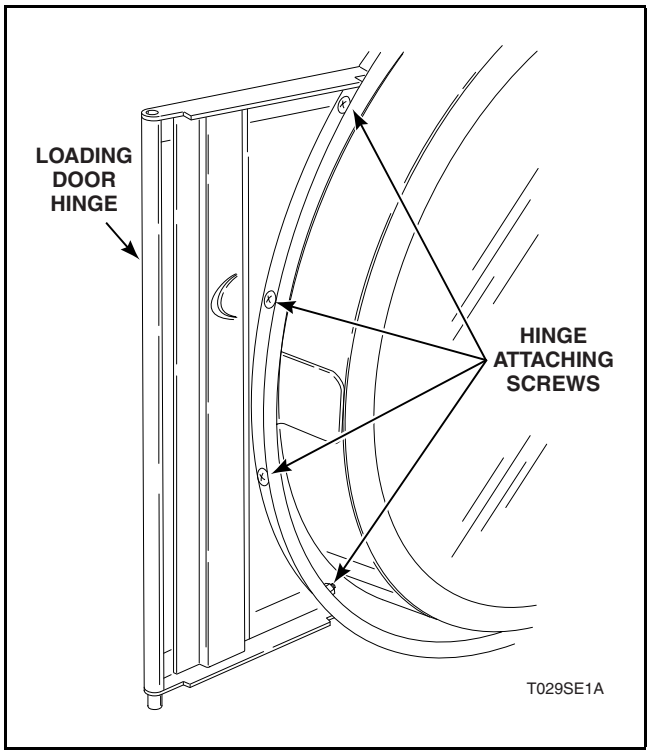

Figure 23

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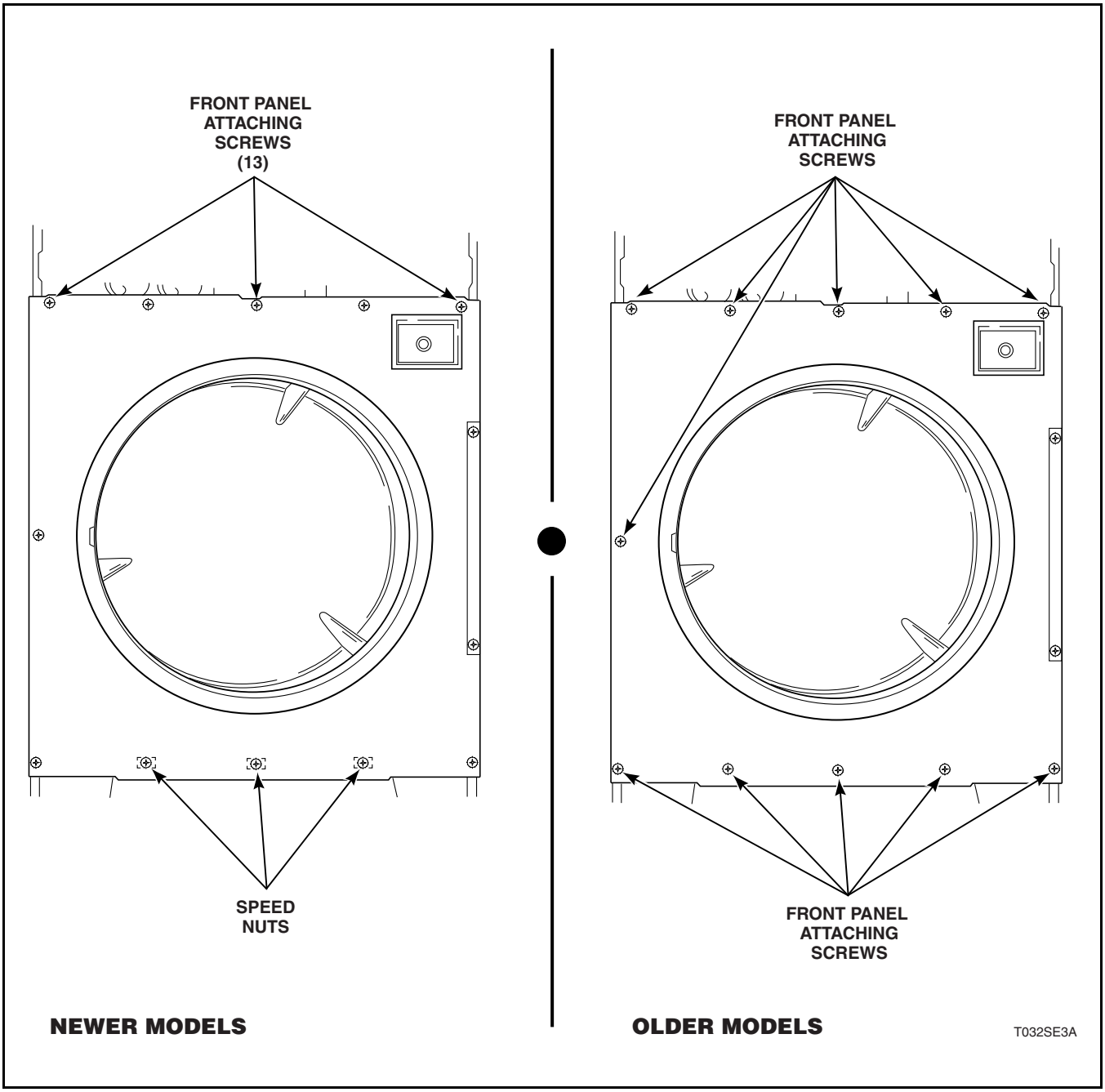

Figure 24

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

94. LOADING DOOR SWITCH

a. Remove control panel.
b. Disconnect wires from door switch.
c. Remove two switch attaching screws and remove switch. Refer to *Figure 25*.

NOTE: Refer to wiring diagram when rewiring door switch.

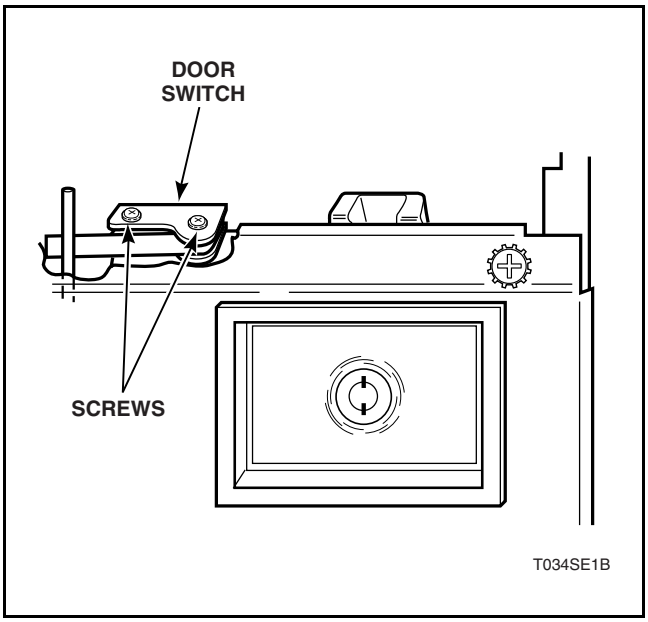

Figure 25

95. LOADING DOOR SWITCH ROD

Refer to *Figure 26*.

a. Remove front panel.
b. Remove nut, washers and spring clip holding switch rod to backside of front panel.
c. Apply upward pressure on the welded clip to allow switch rod to snap free. Refer to *Figure 26*.

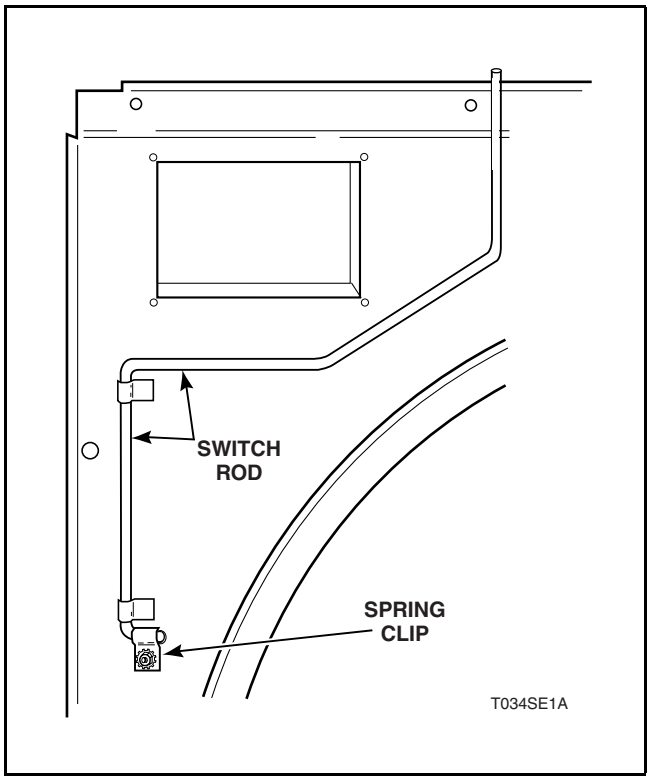

Figure 26

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

96. AIRFLOW SWITCH

NOTE: Depending on the model, the airflow switch will be found either on the rear of the stove assembly, directly below the wire-way or within the wire way on the rear of the tumbler.

a. Remove wire-way cover plate (older models), or airflow switch box cover (newer models).
b. Disconnect wires from switch. Refer to *Figure 28*.

NOTE: Refer to wiring diagram when rewiring airflow switch.

c. Remove screw(s) holding switch and mounting bracket to rear of tumbler (older models); or to switch box (newer models). Refer to *Figure 28*.
d. Remove two screws holding switch to mounting bracket.

NOTE: After reinstalling airflow switch and mounting bracket into switch box, adjust switch. Refer to Adjustments Section.

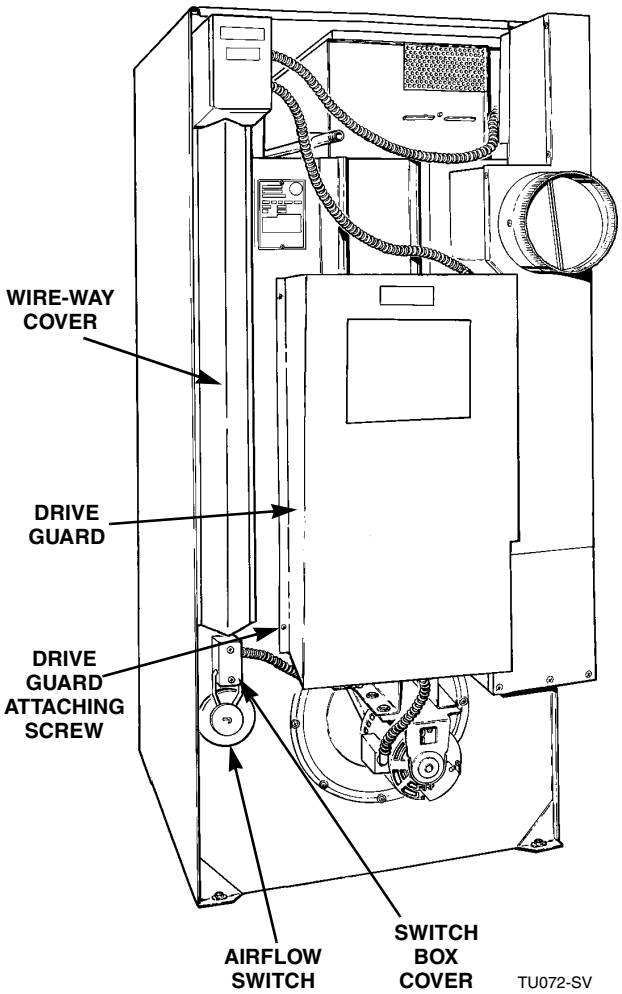

Figure 27

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

97. WIRE COVER or WIRE CHANNEL COVER PLATE
Refer to *Figure 27*.

a. Remove single screw holding wire channel cover plate to wire channel (older models); or remove six screws holding wire cover to rear of tumbler (new models).
b. Remove wire cover or wire channel cover plate.

IMPORTANT: When reinstalling cover, make sure the wires and thermostat sensing tube (if equipped) are not pinched between rear of cabinet and wire cover or between cover plate and channel.

98. DRIVE GUARD

a. Support drive guard and remove screws holding guard to rear of tumbler. Refer to *Figure 27*.
b. Reinstall drive guard.

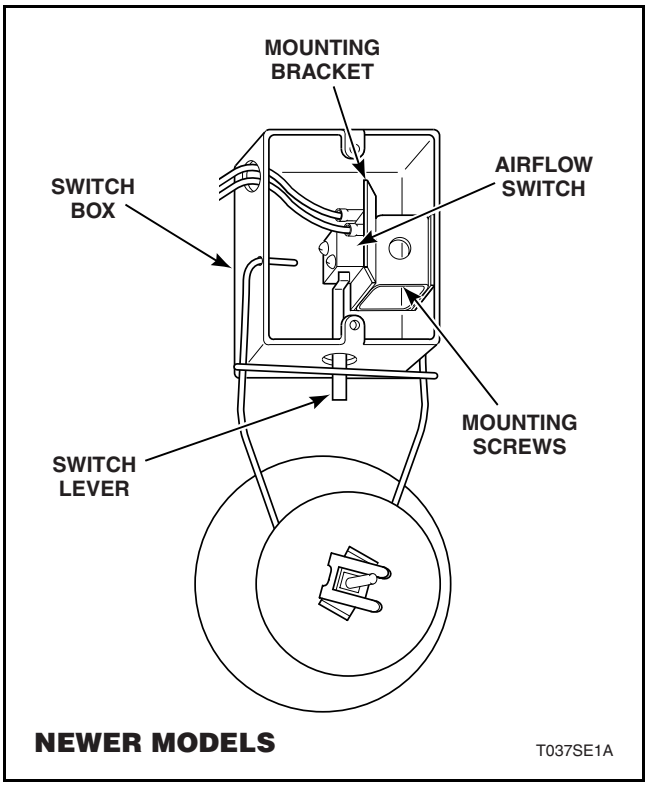

Figure 28

99. DRIVE BELT
Nonreversing Tumblers

a. Remove drive guard. Remove four clips (older models) or two screws (newer models) holding belt guard assembly to motor bracket. Refer to *Figure 29*. Remove belt guard.
b. Remove chain.
c. Loosen nut on idler housing attaching bolt. Refer to *Figure 30*. Drop idler housing to bottom of slots.
d. Remove lower bolt and nut from guide rail. Refer to *Figure 30*. Hinge guide rail out and slip belt out from under guide rails.
e. Slip new belt under guide rail and onto sheave and motor pulley. Refer to *Figure 31*.

NOTE: After reinstalling belt and chain, adjust belt, then adjust chain.

Reversing Tumblers

a. Support drive guard and remove the screws holding it to the back panel of the tumbler. Leave the belt guard attached to the top of the drive guard.
b. Loosen four capscrews holding motor mounting bracket to side brackets. Lower motor and mounting bracket until holding capscrews bottom in the mounting slots.
c. Slip drive belt off of the motor pulley.
d. Disconnect the wires from motor.
e. Slip drive belt off of sheave, and remove drive belt by working it over the top of the guide rails.
f. Slip the new belt onto the sheave and the motor pulley. Adjust belt tension.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

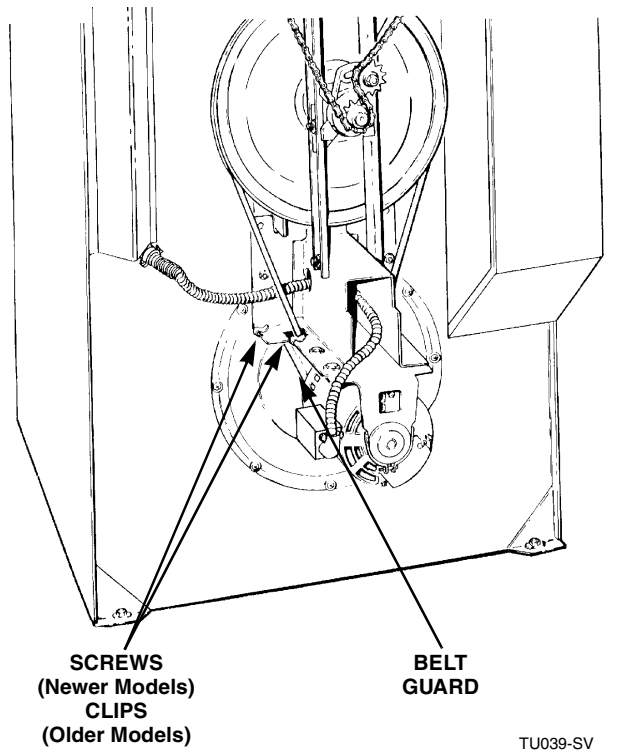

Figure 29

100. DRIVE CHAIN

Nonreversing Tumblers

a. Remove drive guard.
b. Loosen jamnut on idler sprocket locking bolt and move sprocket to the right to relieve chain tension. Refer to *Figure 30*.
c. Run chain off drive sprocket and lift chain off cylinder sprocket.
d. Reinstall chain and drive guard.

Reversing Tumblers

a. Repeat steps “a” and “b” of procedure for non-reversing tumblers, above.
b. Loosen nut on idler housing attaching bolt and slide idler housing to top of slotted mounting holes in guide rails. Refer to *Figure 31*. This will provide slack in drive chain for removal from sprockets.
c. Adjust chain following installation. Refer to Adjustments section.

101. IDLER HOUSING ASSEMBLY

Reversing Tumblers

a. Support drive guard and remove the screws holding it to the back panel of the tumbler. Leave the belt guard attached to the top of the drive guard.
b. Loosen four capscrews holding motor mounting bracket to side brackets. Lower motor and mounting bracket until holding capscrews bottom in the mounting slots.
c. Slip drive belt off of the motor pulley.
d. Loosen nut on idler housing attaching bolt and slide idler housing to top of slotted mounting holes in guide rails. Refer to *Figure 31*. This will provide slack in drive chain for removal from sprockets.
e. Remove top bolt from guide rail and remove guilde rail, idler housing and sheave assembly.
f. After repairing or replacing idler housing assembly, reinstall chain, belt, chain guard and belt guard.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

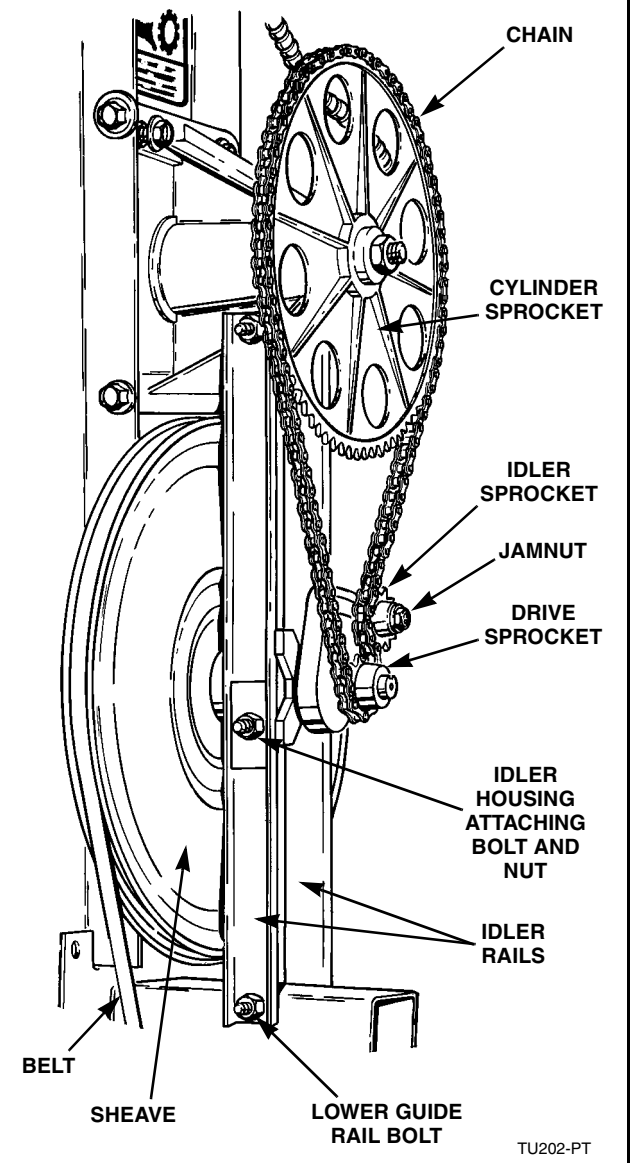

Figure 30

102. IDLER SPROCKET

Nonreversing Tumblers

a. Remove drive guard.
b. Remove drive chain from idler sprocket.
c. Remove jam nut and sprocket from bolt. Refer to *Figure 31*.

NOTE: After installing chain and sprocket, adjust chain. Refer to Adjustments Section.

d. Reinstall chain and drive guard.

103. SHEAVE

a. Remove drive guard.
b. Loosen jam nut on chain idler sprocket and move idler sprocket to the right. Refer to *Figure 31*. (Nonreversing tumblers only.)
c. Run chain off drive sprocket.
d. Remove belt tension by loosening idler capscrews or bolt.
e. While supporting idler housing, remove the upper and lower bolts, nuts, and lockwashers holding guide rails to trunnion housing and motor bracket. Refer to *Figure 31*.
f. Remove the sheave, guide rails and idler housing as an assembly from the rear of the tumbler.
g. Remove snap ring from idler shaft. (Non-reversing models only).
h. Loosen two setscrews holding sheave to idler shaft and pull sheave off idler shaft.
i. Remove key from shaft keyway.

IMPORTANT: Reassemble sheave to idler shaft. On nonreversing tumblers, run sheave out until it butts against snap ring. Make sure that shaft key is correctly positioned under setscrew. Tighten setscrew above key first, then tighten other setscrew.

IMPORTANT: Nonreversing Tumblers — Realign motor pulley directly under sheave by loosening drive motor mounting screws and repositioning motor on mounting bracket.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

IMPORTANT: Reversing Tumblers — Realign motor pulley directly over sheave by loosening drive motor mounting screws and repositioning motor on mounting bracket.

104. DRIVE SPROCKET

Reversing Tumblers

a. Remove drive guard.
b. Loosen nut on idler housing attaching bolt and slide idler housing to top of slotted mounting holes in guide rails. This will provide slack in drive chain for removal from sprockets. Refer to *Figure 31*.
c. Remove chain.
d. Loosen setscrews holding drive sprocket to idler shaft and pull sprocket free.
e. Remove key from shaft keyway.
f. Reinstall chain and drive guard.

IMPORTANT: Reassemble sprocket to idler shaft. Align sprocket with cylinder sprocket. Make sure shaft key is positioned under one of the sprocket setscrews. Tighten setscrew over key first, then tighten the other setscrew.

105. IDLER SHAFT

Refer to *Figure 32*.

a. Remove idler housing assembly.
b. Remove sheave and drive sprocket.
c. Remove bolt holding idler housing to guide rails.
d. Support idler housing assembly and carefully drive idler shaft from housing using a hammer and a hardwood dowel.
e. Support idler housing assembly and remove drive bearings from housing using a hammer and a hardwood dowel.
f. Reinstall shaft and bearings.

IMPORTANT: When installing new bearings, apply a film of oil to the bearing cavity surfaces of the housing and the outside diameter of the bearings.

IMPORTANT: If a press is not available to install bearings, tap bearings into housing using a prylin hammer.

g. Reinstall chain guard.

NOTE: After installing sheave, adjust belt and then adjust chain.

106. CYLINDER SPROCKET

Nonreversing Tumblers

Refer to *Figure 30*.

a. Remove drive guard.
b. Loosen jam nut on idler sprocket and move sprocket to the right to relieve chain tension.
c. Run chain off idler sprocket and drive sprocket.
d. Lift chain off cylinder sprocket.

NOTE: After installing chain on drive and idler sprockets, adjust chain.

e. Remove pal nut, jam nut, and sprocket from cylinder shaft.

Reversing Tumblers

Refer to *Figure 31*.

a. Remove drive chain from sprocket.
b. Remove three attaching bolts from sprocket hub.
c. Turn these three bolts into the threaded holes in the sprocket hub, and "jack" the hub and sprocket apart.
d. Remove hub, sprocket, key and spacer.

NOTE: After installing chain on drive and idler sprockets, adjust chain.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

107. CYLINDER ASSEMBLY

a. Remove control panel.
b. Open loading door.
c. While supporting door, remove upper hinge bolt holding door to hinge bracket.
d. Remove door from hinge bracket.
e. Unlock, open and remove lint panel. Set aside to prevent damage.
f. Support front panel and remove screws (and three speed nuts — newer models only) holding front panel to tumbler cabinet. Refer to *Figure 24*.
g. Remove drive chain or belt.
h. Remove cylinder sprocket and key.
i. Pull cylinder out through front of cabinet.

NOTE: When removing cylinder out through front of cabinet, spread cabinet slightly so cylinder will clear cabinet sides.

NOTE: After reinstalling chain on cylinder, drive and idler sprockets, adjust chain.

NOTE: After installing cylinder and shaft, adjust cylinder.

j. Reinstall chain guard on tumbler.

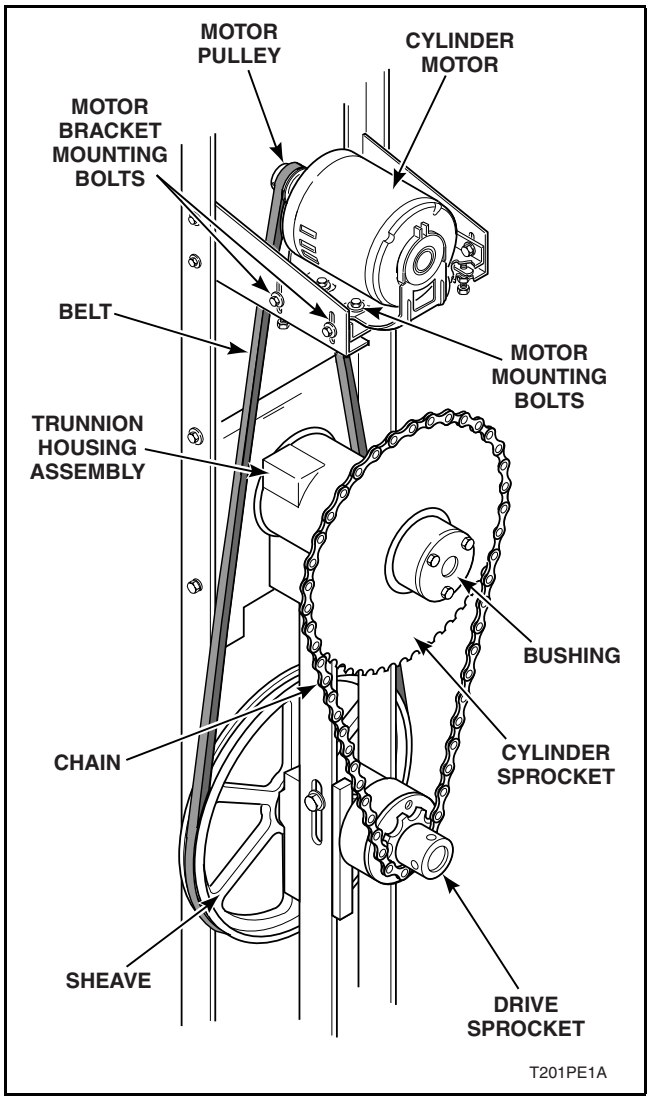

Figure 31

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

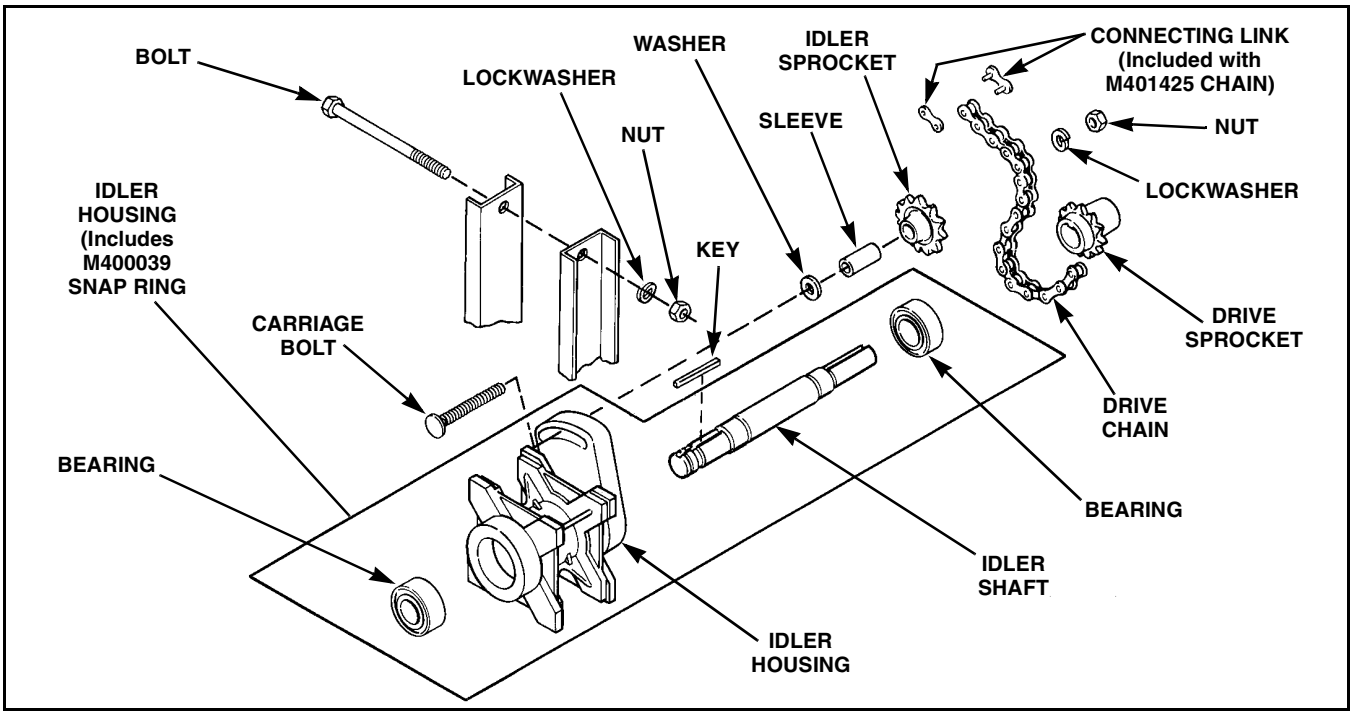

Figure 32

108. TRUNNION HOUSING ASSEMBLY

a. Remove cylinder assembly.
b. Remove upper guide rail bolt and nut. Refer to *Figure 32*.
c. Remove four cap screws holding trunnion housing assembly to rear of cabinet. Refer to *Figure 31*.
d. Remove four bearing retainer screws holding the small bearing in housing. Refer to *Figure 33*.
e. Use a hammer and hardwood dowel to remove bearings.

IMPORTANT: When installing new bearings, apply a film of oil to the bearing cavity surfaces in the housing and to the outside diameter of the bearings.

IMPORTANT: If a press is not available to install bearings, tap bearings into housing.

f. Reinstall chain guard on tumbler. Refer to *Figure 27*.

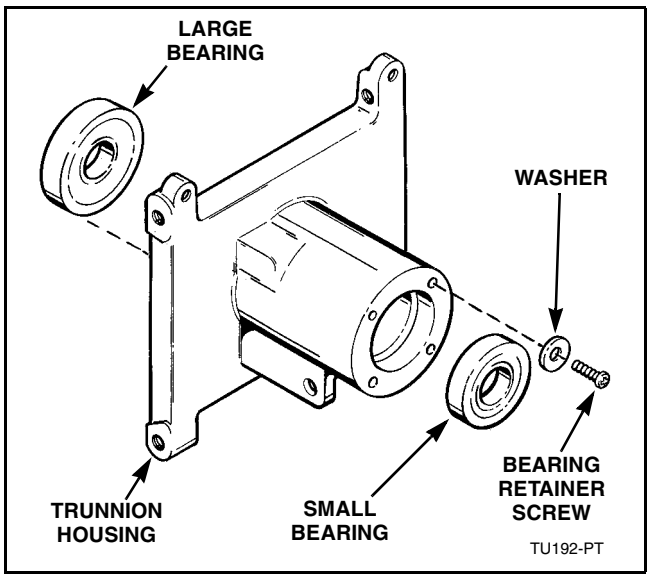

Figure 33

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

109. TRUNNION SHAFT ASSEMBLY
Refer to *Figure 34*.

a. Remove control panel.
b. Open loading door.
c. While supporting door, remove upper hinge bolt holding door to hinge bracket.
d. Remove door from hinge bracket.
e. Unlock, open and remove lint panel. Set aside to prevent damage.
f. Support front panel and remove screws (and three speed nuts — newer models only) holding front panel to tumbler cabinet. Refer to *Figure 24*.
g. Remove drive chain.
h. Remove cylinder sprocket and key.
i. Pull cylinder out through front of cabinet.

NOTE: When removing cylinder out through front of cabinet, spread cabinet slightly so cylinder will clear cabinet sides.

j. Remove the four washers and nuts holding trunnion shaft assembly to rear of cylinder.

IMPORTANT: When installing trunnion assembly on cylinder, the cylinder and shaft must be aligned. Refer to *Figure 34* for an example of how to check for proper alignment of the shaft and cylinder. Measure the distance between the center of the trunnion shaft and the outer rim of the cylinder at the four points shown. If any measurement is lower than the highest point, place shim or shims (M401402) between trunnion channel and cylinder back until the measurement is equal to the highest point.

NOTE: After installing cylinder and shaft, adjust cylinder.

k. Reinstall chain guard on tumbler. Refer to *Figure 27*.

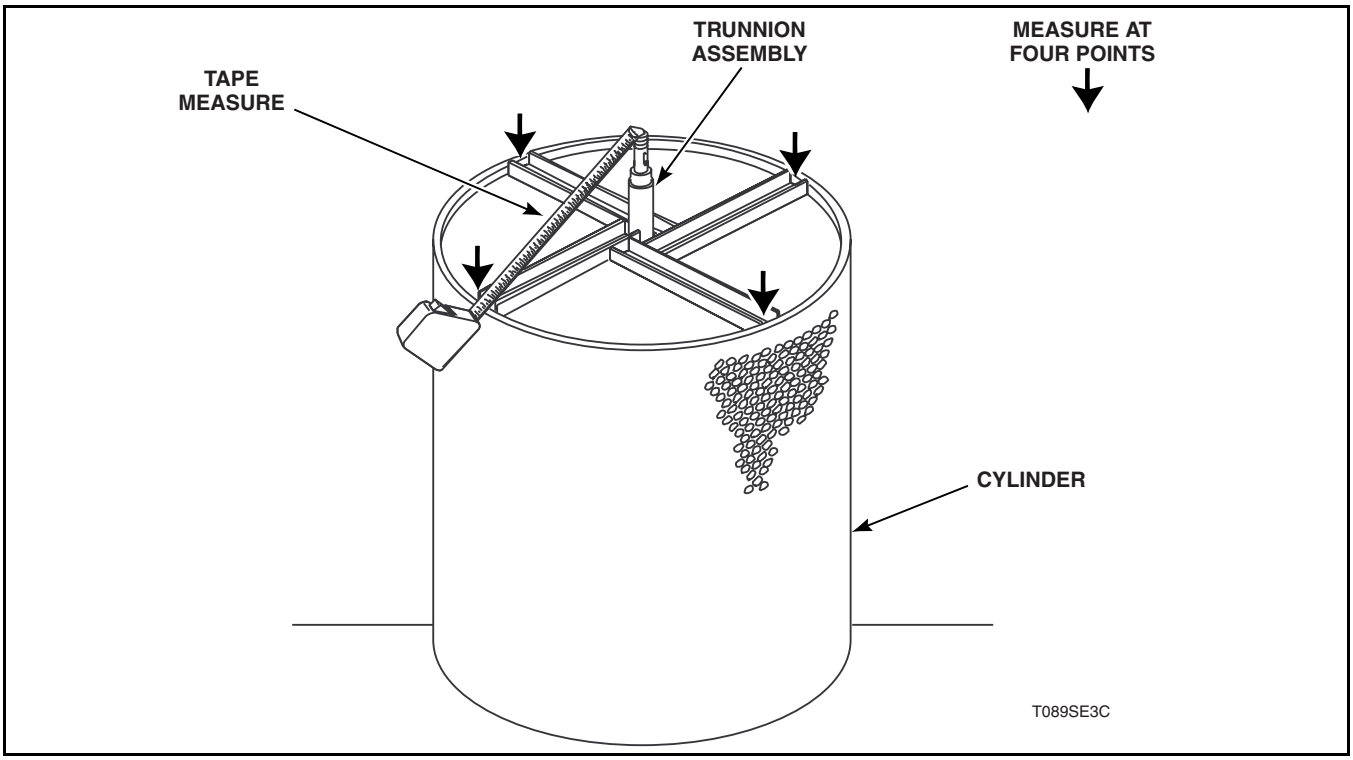

Figure 34

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

110. MOTOR AND FAN ASSEMBLY (Nonreversing)

a. Disconnect wires from motor as follows:

Older models (No quick-disconnect wire harness)

(1) Remove cover plate from motor junction box and disconnect wires from motor wires. Refer to *Figure 35*.

(2) Remove conduit nut from inside of motor junction box. Pull wires from junction box.

Newer models (Quick-disconnect wire harness)

(1) Remove cover plate from rear of motor.

(2) Mark four wires and disconnect them from motor terminals.

(3) Loosen clamp screws in box connector.

(4) While holding box, turn box connector out of motor.

NOTE: Refer to wiring diagram when rewiring motor.

b. Remove chain or upper belt.

c. Loosen nut on upper guide rail bolt. Refer to *Figure 30*.

d. Loosen nut on idler housing attaching bolt and lower idler housing to bottom of slots. This is to put slack in drive belt, so it can be slipped off the motor pulley without risk of damage.

e. Remove four clips or two screws holding belt guard to motor bracket and remove belt guard. Refer to *Figure 29*.

f. Remove nut and washer from lower guide rail bolt. Refer to *Figure 30*.

NOTE: After removing belt, replace the lower guide rail bolt. Refer to *Figure 36*.

g. Slip drive belt off motor pulley.

h. Remove the seven fan housing attaching screws. Refer to *Figure 35*.

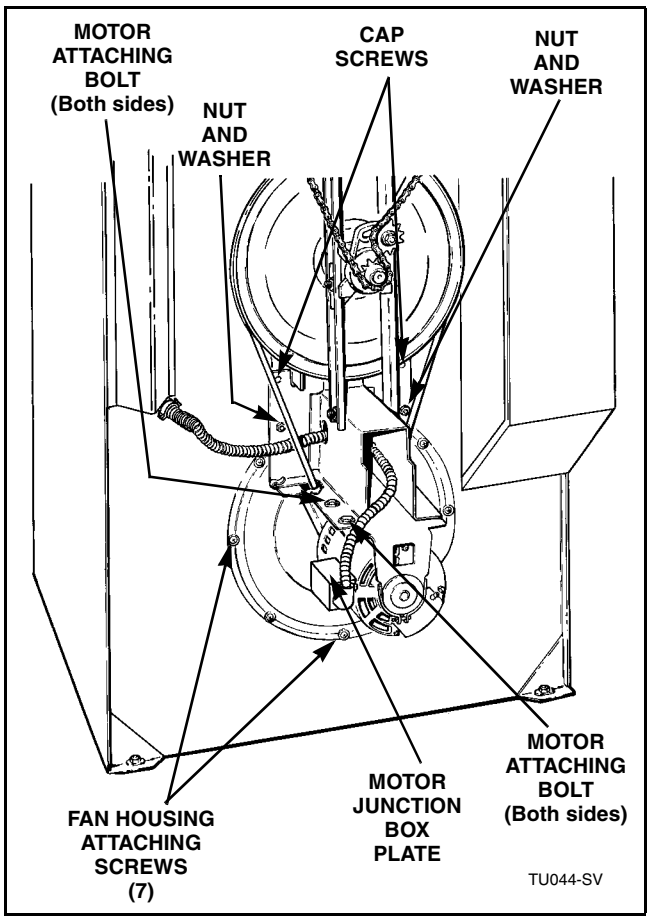

Figure 35

i. Remove the two capscrews and two sets of nuts and washers holding motor bracket to rear of tumbler cabinet. Refer to *Figure 35*.

j. Using the guide rails as supports, swing motor and fan assembly out and away from rear of tumbler. Refer to *Figure 36*.

k. While supporting motor and fan assembly, remove the lower guide rail bolt. Refer to *Figure 30*.

l. Remove four sets of nuts, washers and bolts holding mounting bracket to motor. Refer to *Figure 35*.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

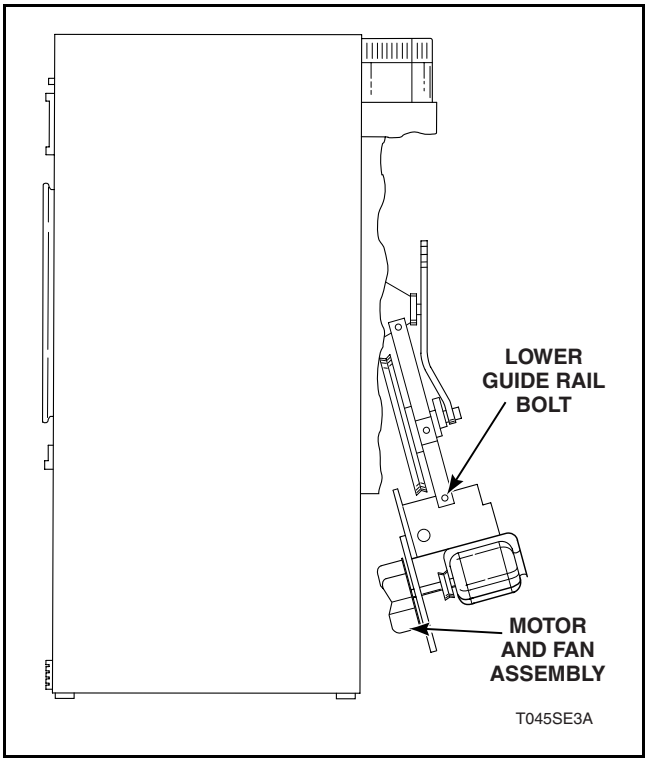

Figure 36

m. Remove locknut and jam nut holding fan on motor shaft. Refer to *Figure 37*. Pull fan off motor shaft.

NOTE: Fan is keyed to motor shaft and may have to be removed using a puller. Look for a spacer washer at the bottom of the fan keyway. Take care to avoid losing or damaging the spacer washer.

n. Remove spacer washer from motor shaft. Refer to *Figure 37*.

o. Loosen two setscrews holding motor pulley to motor shaft. Refer to *Figure 37*. Remove motor pulley.

NOTE: A puller may be required to remove pulley from motor shaft.

NOTE: After installing motor and fan assembly, adjust belt, then adjust chain (Nonreversing models only.)

111. FAN AND MOTOR ASSEMBLY (Reversing Tumblers)

a. Disconnect wires from motor as follows:

Older models (No quick-disconnect wire harness)

(1) Remove cover plate from motor junction box and disconnect wires from motor wires. Refer to *Figure 35*.

(2) Remove conduit nut from inside of motor junction box. Pull wires from junction box.

Newer models (Quick-disconnect wire harness)

(1) Remove cover plate from rear of motor.

(2) Mark four wires and disconnect them from motor terminals.

(3) Loosen clamp screws in box connector.

(4) While holding box, turn box connector out of motor.

NOTE: Refer to wiring diagram when rewiring motor.

b. Remove nut and washer from lower guide rail bolt. Refer to *Figure 30*.

c. Remove the seven fan housing attaching screws. Refer to *Figure 35*.

d. Remove the two capscrews and two sets of nuts and washers holding motor bracket to rear of tumbler cabinet. Refer to *Figure 35*.

e. Using the guide rails as supports, swing motor and fan assembly out and away from rear of tumbler. Refer to *Figure 36*.

f. While supporting motor and fan assembly, remove the lower guide rail bolt. Refer to *Figure 30*.

g. Remove four sets of nuts, washers and bolts holding mounting bracket to motor. Refer to *Figure 35*.

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

h. Remove locknut and jam nut holding fan on motor shaft. Refer to *Figure 37*. Pull fan off motor shaft.

NOTE: Fan is keyed to motor shaft and may have to be removed using a puller. Look for a spacer washer at the bottom of the fan keyway. Take care to avoid losing or damaging the spacer washer.

i. Remove spacer washer from motor shaft. Refer to *Figure 37*.

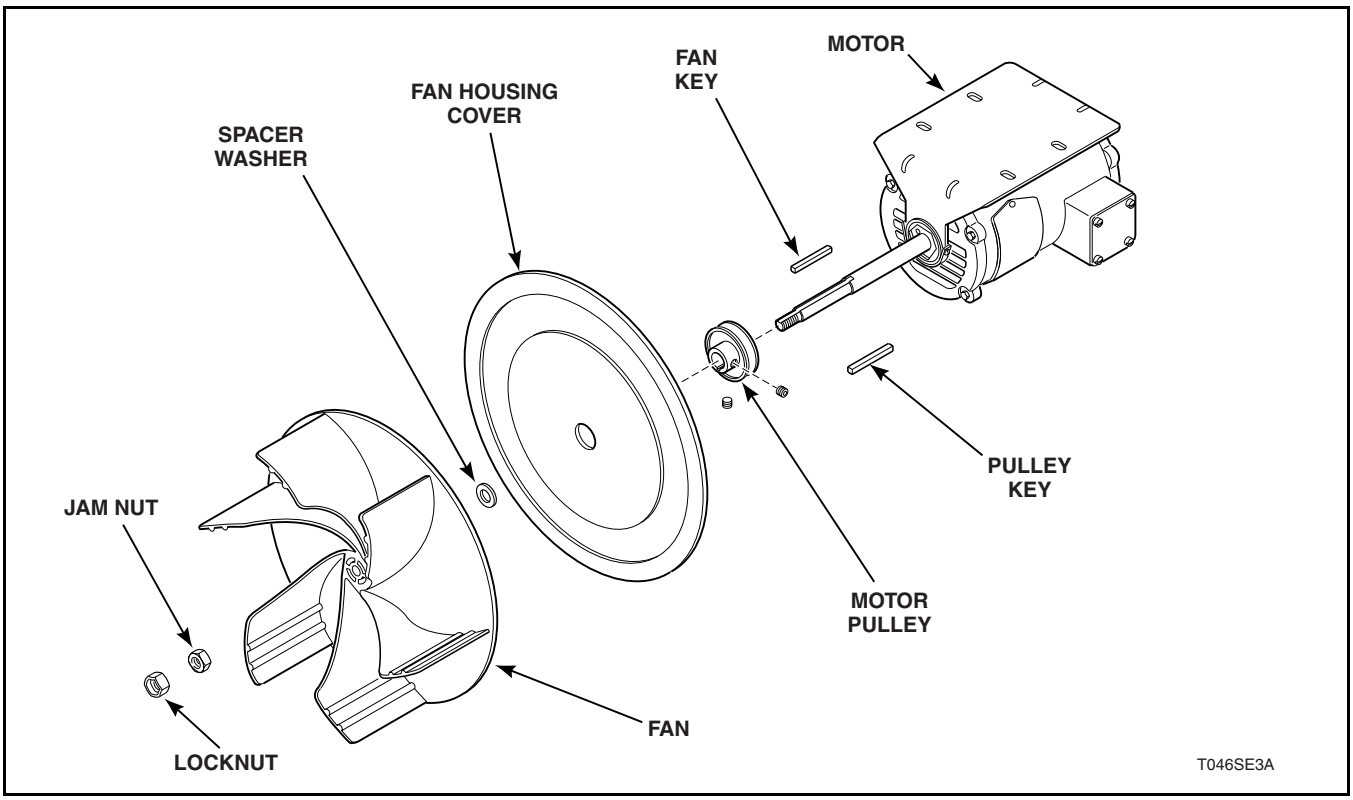

Figure 37

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

112. CYLINDER DRIVE MOTOR (Reversing Tumblers)
Refer to *Figure 38*.

a. Support chain guard and remove the screws holding it to the back panel of the tumbler. Leave the belt guard attached to the top of the chain guard.

b. **Older Models:** Loosen four capscrews holding motor mounting bracket to side brackets. Lower motor and mounting bracket until holding capscrews bottom in the mounting slots. Refer to *Figure 38*.
Newer Models: Loosen locking bolt and back adjusting screw out to loosen belt. Refer to *Figure 46*.

c. Slip drive belt off of the motor pulley.

d. Disconnect the wire harness from motor.

e. Remove the four capscrews, nuts, lockwashers and flat washers holding the motor to the mounting bracket.

f. Loosen the setscrews in the motor pulley and remove pulley by using a suitable puller.

NOTE: Refer to wiring diagram when rewiring the motor.

g. After installing motor, adjust drive belt tension, and adjust motor position on mounting bracket.

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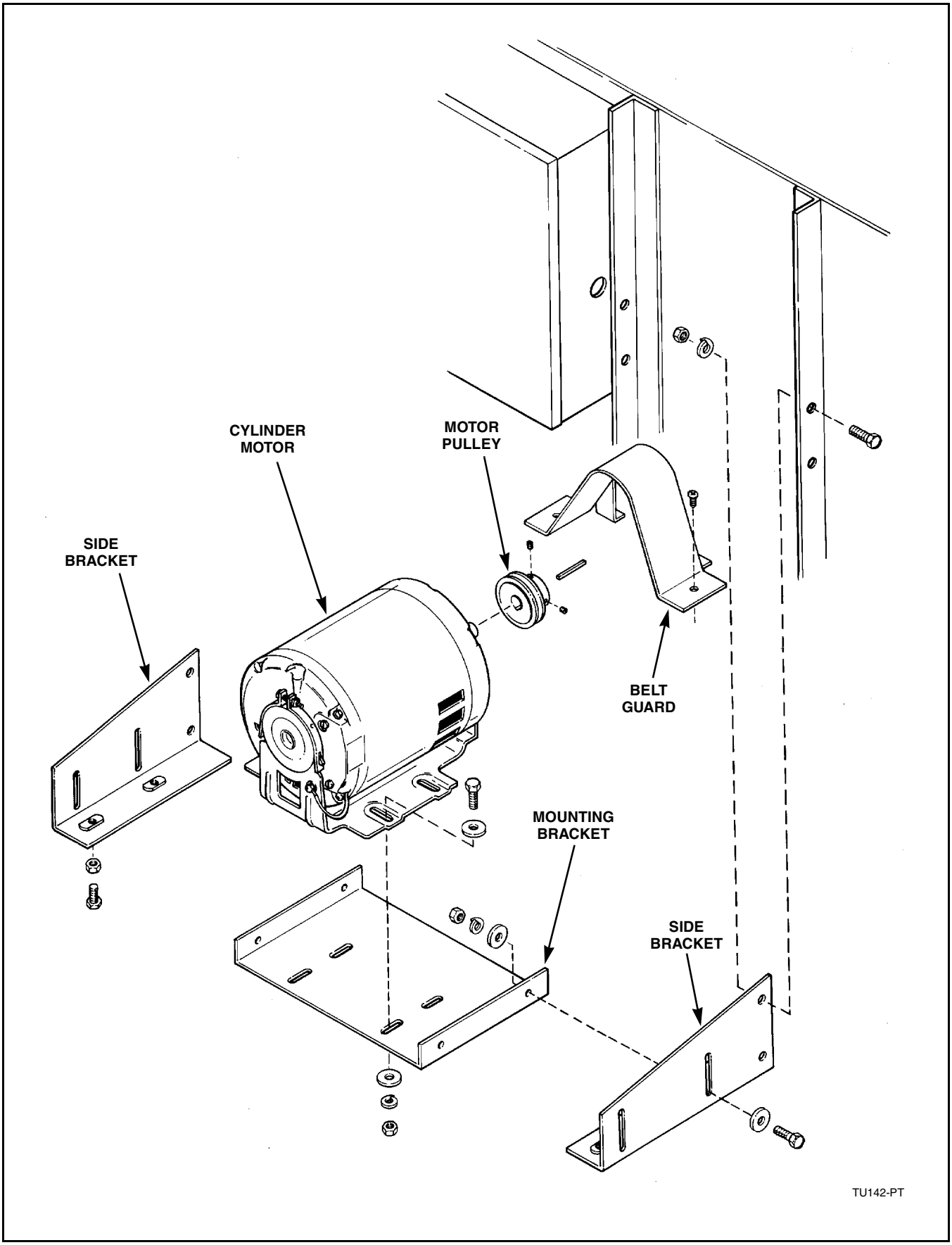

Figure 38

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

113. REVERSING CONTROL ELECTRICAL COMPONENTS

Refer to *Figure 39*.

NOTE: All electrical components except the reversing/nonreversing switch are located in the reversing control box on the rear of the tumbler. The reversing/nonreversing switch is mounted on the upper right hand corner of the control panel.

a. **Reversing/Nonreversing switch:**
   (1) Remove control panel.
   (2) Disconnect wires from switch terminals.

NOTE: Refer to wiring diagram when rewiring switch.

   (3) **Manual Timer Models:** Remove knurled nut holding switch to front of control panel. **MM Models:** Compress tabs on switch from **rear** side of control panel. Slide switch forward out of control panel.
   (4) Remove and save hex nut from switch shaft. Knurled nut is furnished with the switch.

b. **Reversing timer assembly:**
   (1) Remove two attaching screws and cover from control box.
   (2) Disconnect wires from timer motor and switches, or from solid state reversing timer.

NOTE: Refer to wiring diagram when rewiring timer motor and switches.

   (3) Remove two screws holding timer to back wall of control box.
   (4) **Models not having solid state reverser:** Remove timer motor and/or switches as necessary for replacement. If timer itself is faulty, replace the complete assembly, including timer motor and switches.

c. **Reversing contactor:**
   (1) Remove two attaching screws and cover from control box.
   (2) Disconnect wires from contactor coil terminals.

NOTE: Refer to wiring diagram when rewiring reversing contactor.

   (3) Remove screws holding contactor to back wall of control box.
   (4) To remove coils for replacement, remove single screw holding each coil to contactor frame.
   (5) If contactor problem is something other than a defective coil, replace complete contactor assembly.

d. **Fan motor contactor:**
   (1) Remove two attaching screws and cover from reversing control box (earlier versions); or remove junction box cover (later versions).
   (2) Disconnect wires from contactor terminals.

NOTE: Refer to wiring diagram when rewiring fan motor contactor.

   (3) Remove two screws holding fan motor contactor to back wall of reversing control box, or junction box.

e. **Transformers** (480 volt electrical system only):
   (1) Remove two attaching screws and cover from reversing control box.
   (2) Disconnect leads from transformer terminals.

NOTE: Refer to wiring diagram when rewiring transformer.

   (3) Remove four screws holding transformer to back wall of reversing control box.

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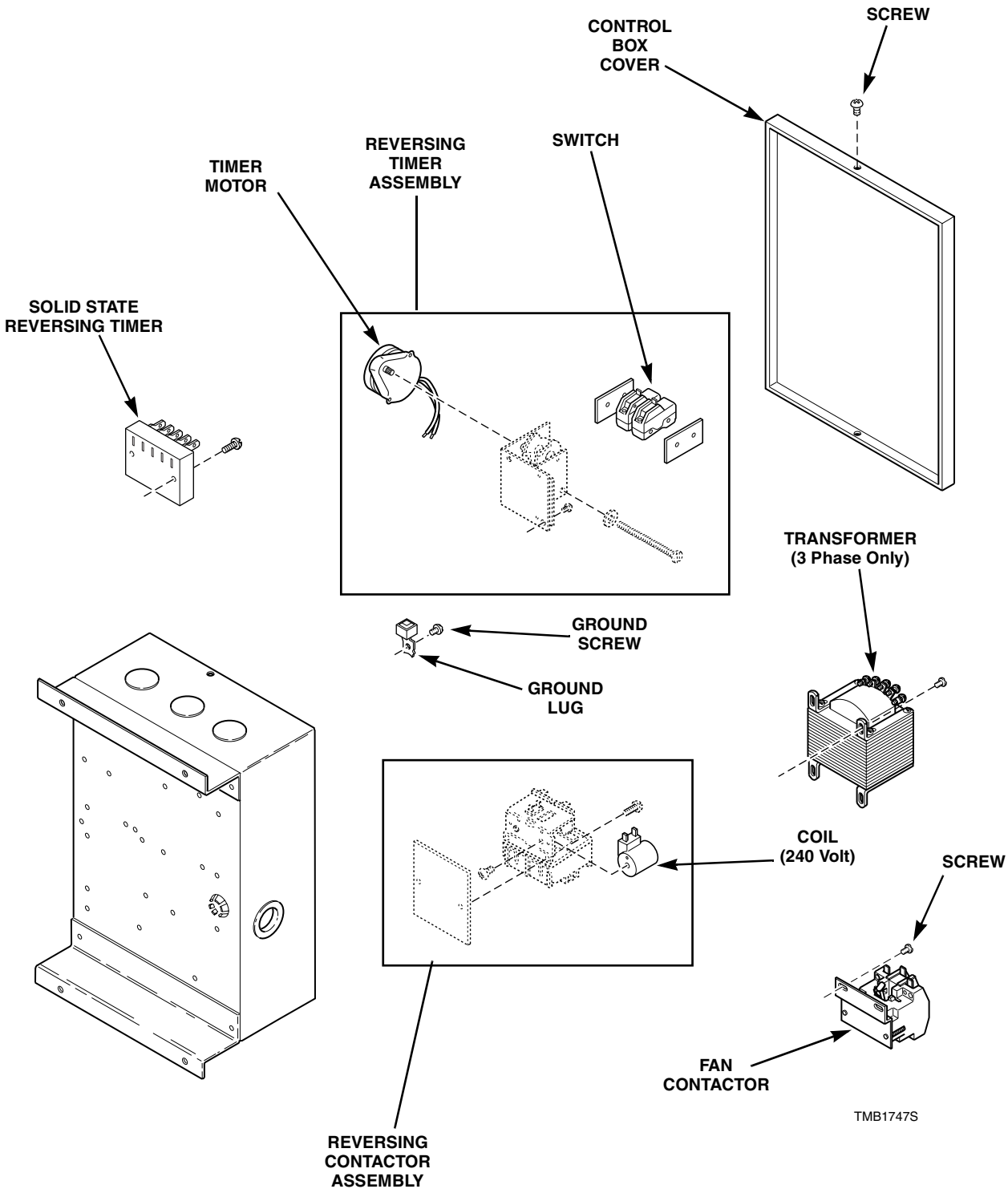

REVERSING CONTROL ASSEMBLY

Figure 39

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Section 6
Adjustments

WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

114. LEVELING LEGS

NOTE: It is recommended that the front of the tumbler be kept slightly higher than the rear (approximately 1/8 inch, 3.0 mm). This will prevent the clothes, while tumbling, from wearing on the door glass gasket.

a. Check the front to rear level by rotating the clothes cylinder until one of the cylinder ribs is at the bottom. Place a level on the rib.
b. Check the side to side level by placing a level on the front and rear of top panel.
c. Front leg adjustment fittings are accessed by removing lint panel door. Rear adjustment fittings are located on rear corner braces. Adjust legs as needed.

NOTE: Keep the tumbler as close to the floor as possible. All four legs must rest firmly on the floor so weight of tumbler is evenly distributed. Tumbler must not rock.

d. Replace lint panel.

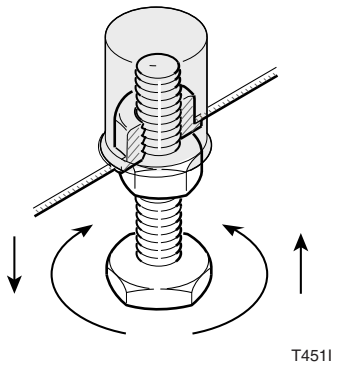

Figure 40

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

115. MAIN GAS BURNER AIR INLET SHUTTERS (All Gas Models)

Refer to *Figure 41*.

CAUTION

The air inlet shutters on the burner must be adjusted so sufficient primary air is metered into the system for proper combustion and maximum efficiency. Before adjusting the inlet shutter be sure that all lint is removed from lint compartment and lint screen.

W281

Air inlet shutter adjustments will vary from location to location and will depend on the vent system, number of units installed, make-up air and line gas pressure. Opening the shutter increases the amount of air supplied to the burner while closing the shutter decreases the air supply. Adjust air shutter as follows:

a. Unlock and open the access door.
b. Start the tumbler and check the flame pattern. Correct air and gas mixture is indicated if the flame pattern is primarily blue, with small yellow tips, and bends to the right of the heater section. Too little air is indicated if the flame is yellow, lazy and smoky.
c. To adjust the air inlet shutter, loosen adjusting screws. The control panel may have to be removed temporarily to loosen adjusting screw.
d. Turn shutter to the right or left (or in or out on new models) as necessary to obtain desired flame intensity.
e. After shutter is adjusted, tighten locking screw securely.
f. If the shutter is correctly adjusted, but the flame pattern is straight up, insufficient air is flowing through the tumbler and airflow switch is improperly set. A flame pattern that flares to the right and left, indicates that no air is flowing through the tumbler.

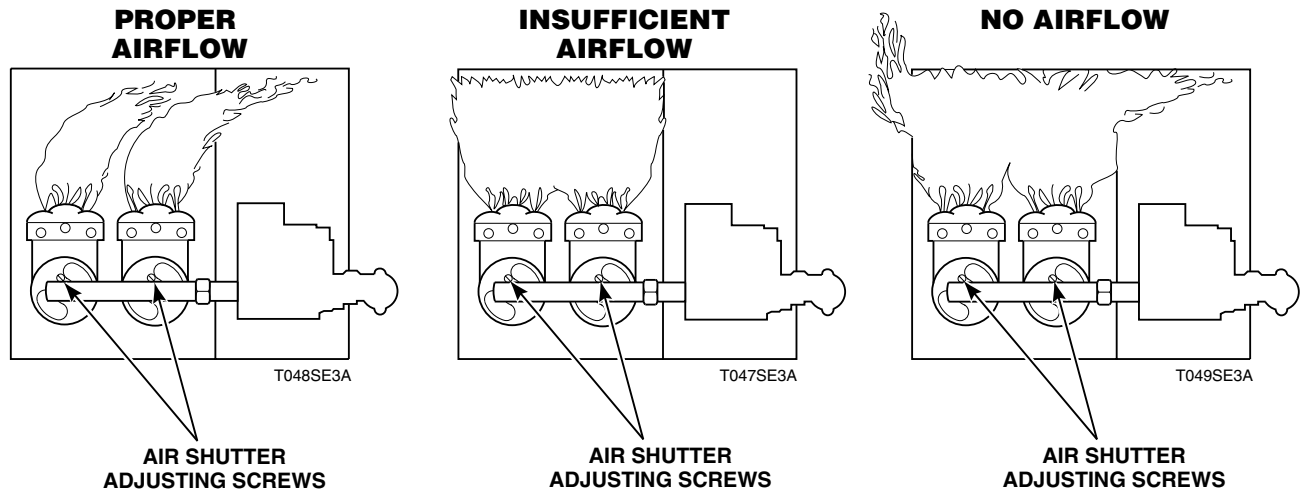

Figure 41

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

116. AIRFLOW SWITCH
Refer to *Figure 42*.

IMPORTANT: Airflow switch disc must remain closed during operation. If it opens during the drying cycle, insufficient airflow through the tumbler is indicated. If switch remains open, or pops open and closed during the cycle, the heating system will shut off. The cylinder and fan will continue to operate even though the airflow switch is malfunctioning.

WARNING

Airflow switch operation may be affected by a clogged lint screen, lack of make-up air, or by obstructions in the vertical recirculation stack, or in the customer installed main or collector ducts. These conditions MUST be checked and necessary corrections made before adjusting airflow switch. Always check airflow at installation. Under no circumstances is the airflow switch to be blocked closed or bypassed.

W277

The airflow switch is set at the factory for proper operation. However, at installation, and following repairs, the airflow switch operation should be checked. The airflow switch operation is controlled by the counterweight position on the shaft. Moving the counterweight changes airflow switch sensitivity. The counterweight should be adjusted so the airflow will force the disc away from the cabinet when the lint panel is opened 1-1/2 inches (38 mm). Adjust the airflow switch as follows:

a. Load the tumbler with a 50 pound dry cotton load.

NOTE: Airflow adjustment is much faster with one person opening lint panel in front and another adjusting the counterweight in the rear of tumbler.

b. Start the tumbler. Open the lint panel 1-1/2 inches (38 mm). The airflow disc should move away from the cabinet, opening the switch contacts and shutting off the heat system. This indicates proper operation and proper adjustment.
c. If switch is not opening as described in step “b”, it should be adjusted so it is MORE sensitive. Depress the spring clip and move counterweight a small amount toward disc. Retest by opening lint panel and continue moving counterweight toward disc until switch operates as described in step “b”.
d. If switch opens BEFORE lint panel is opened the proper distance, in step “b”, it should be adjusted so it is LESS sensitive. Depress the spring clip and move counterweight a small amount away from the disc. Retest by opening lint panel and continue moving counterweight away from disc until switch operates as described in step “b”.

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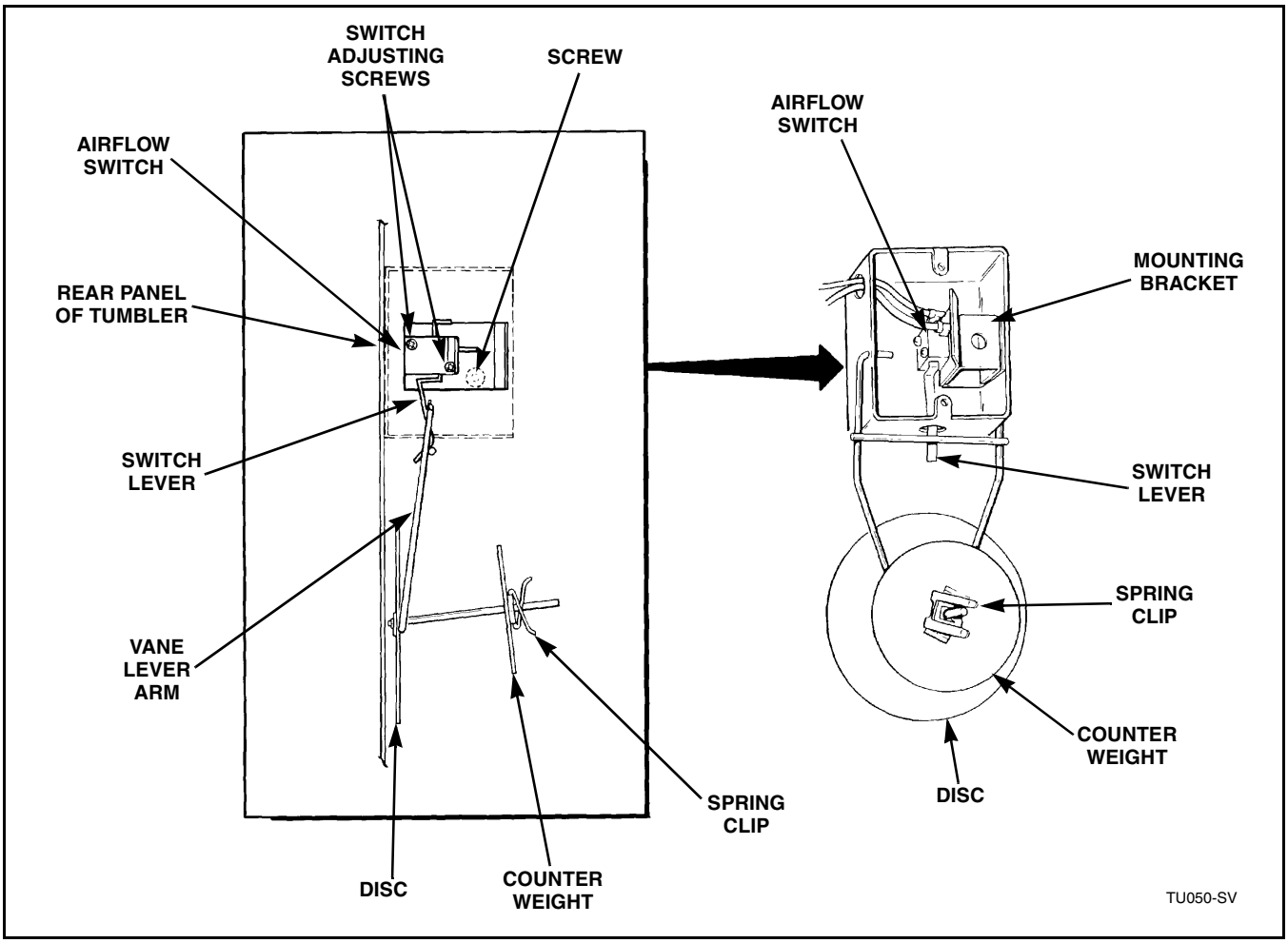

Figure 42

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
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- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

117. LOADING DOOR SWITCH

Refer to *Figure 43*.

The door switch should be adjusted so the cylinder stops when door is opened two inches (51 mm), plus or minus 1/4 inch (6 mm). This switch is a normally open switch and is closed when the door is closed.

a. Close door and start tumbler, then slowly open loading door. Cylinder and heat system should shut off when door is open two inches (51 mm) plus or minus 1/4 inch (6 mm).

b. Slowly close loading door. When door is two inches (51 mm) from being fully closed, the tab on the door should contact the switch rod and depress it enough to close the switch with an audible “click”.

c. If tab does not depress the switch rod enough to operate the switch, bend tab outward and repeat steps “a” and “b”.

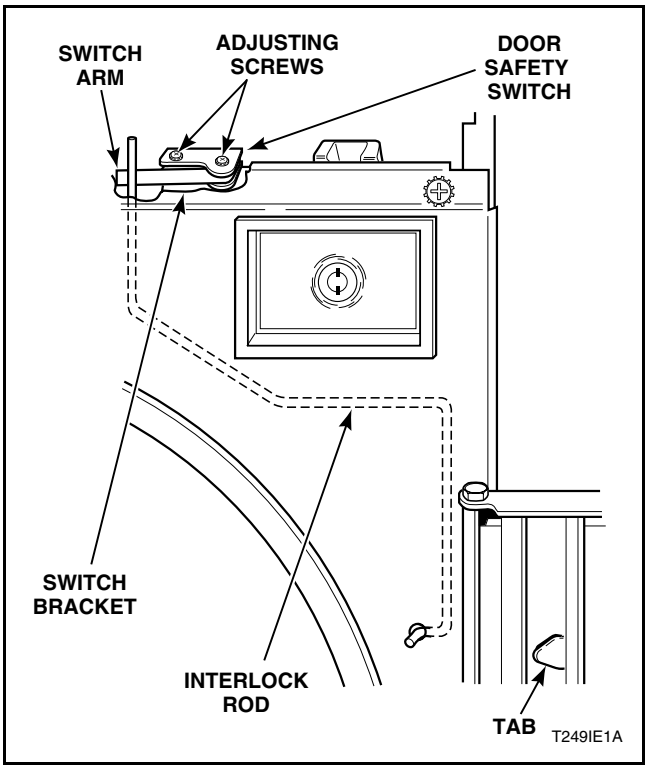

Figure 43

118. CYLINDER DOOR STRIKE

Refer to *Figure 44*.

The door strike must be adjusted so it has sufficient tension to hold loading door closed against the force of a tumbling load. The door strike is properly adjusted when 8-15 lbs. (17.6-33 kg) of pull is required to open door.

To adjust, open door, loosen acorn nut and turn door strike screw in or out as required. Retighten acorn nut.

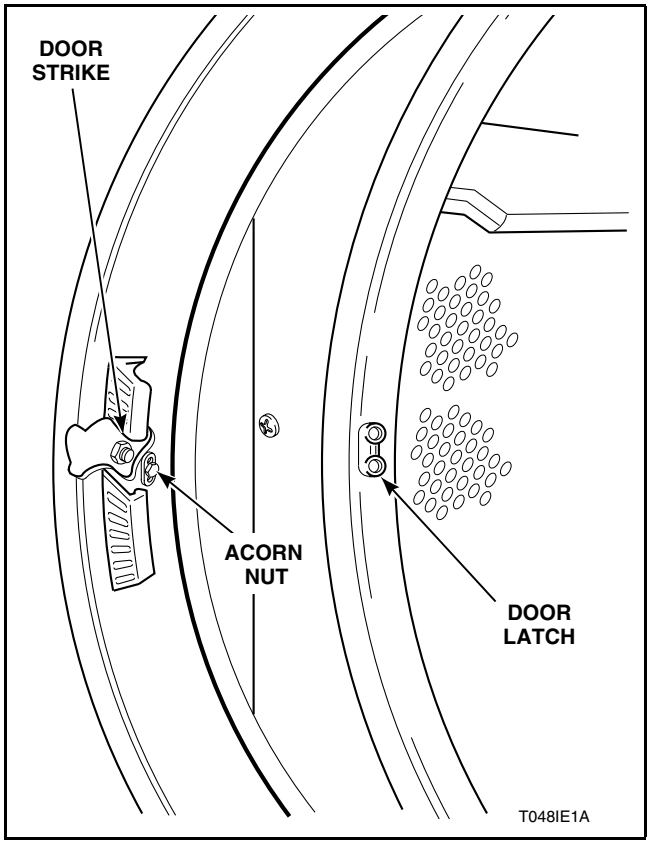

Figure 44

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WARNING

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- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

119. DRIVE BELT TENSION

Refer to *Figure 46*.

Proper tension is when drive belt can be depressed 1/2 inch (12.7 mm) by applying light thumb pressure (approximately 5 pounds) at a point midway between sheave and motor pulley.

Reversing Belt Drive Models: Proper tension is when each cylinder belt can be depressed approximately 3/16 inch (4.77 mm) by applying light thumb pressure (approximately 5 pounds) at a point midway between the sheave and the idler.

CAUTION

Adjusting the drive belt tension WILL AFFECT drive chain tension. You MUST check and readjust the chain tension after adjusting belt tension.

W282

Nonreversing Tumblers (Belt and Chain Drive Models):

a. Remove guard from rear of tumbler.
b. Loosen idler housing bolts holding idler housing to the housing support.
c. Position housing assembly by turning adjusting bolt until proper belt tension is reached, then retighten idler housing bolts.
d. Replace guard on rear of tumbler.

Reversing Tumblers:

a. Remove guard from rear of tumbler.
b. To adjust cylinder belt tension, loosen idler housing bolts holding idler housing assembly to the housing support.
c. Position housing assembly by turning adjusting bolt until proper belt tension is reached, then retighten idler housing bolts.

NOTE: Adjust cylinder belt tension first, then adjust motor to idler belt tension. Refer to *Figure 38* for older models. Refer to *Figure 46* for newer models.

d. Loosen the locking bolt.
e. Loosen the adjusting nut and use the adjusting screw to move the motor up or down.
f. Once proper belt tension is reached, retighten the adjusting nut and locking bolt.
g. Replace the guard on rear of tumbler.

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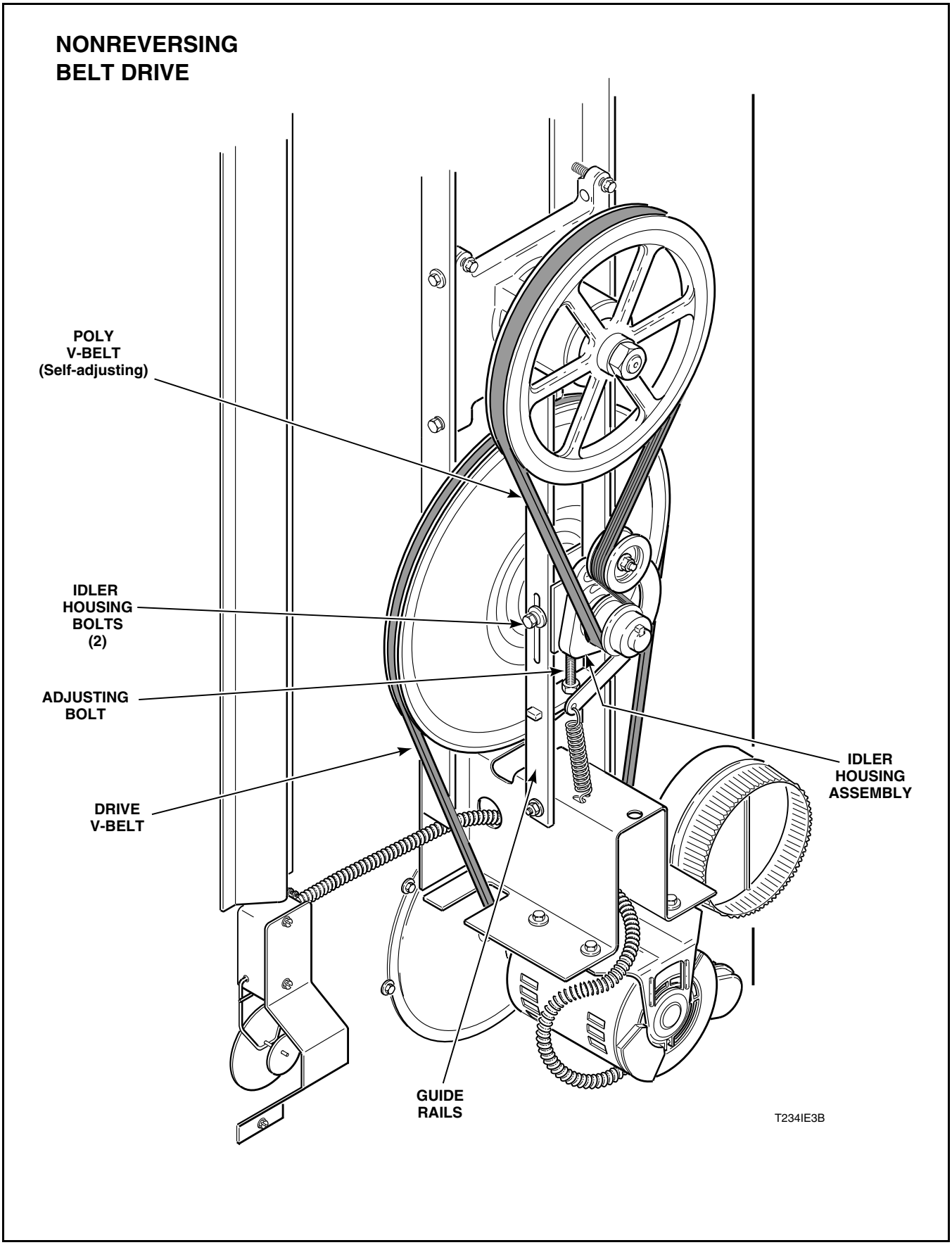

Figure 45

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BELT/BELT REVERSING

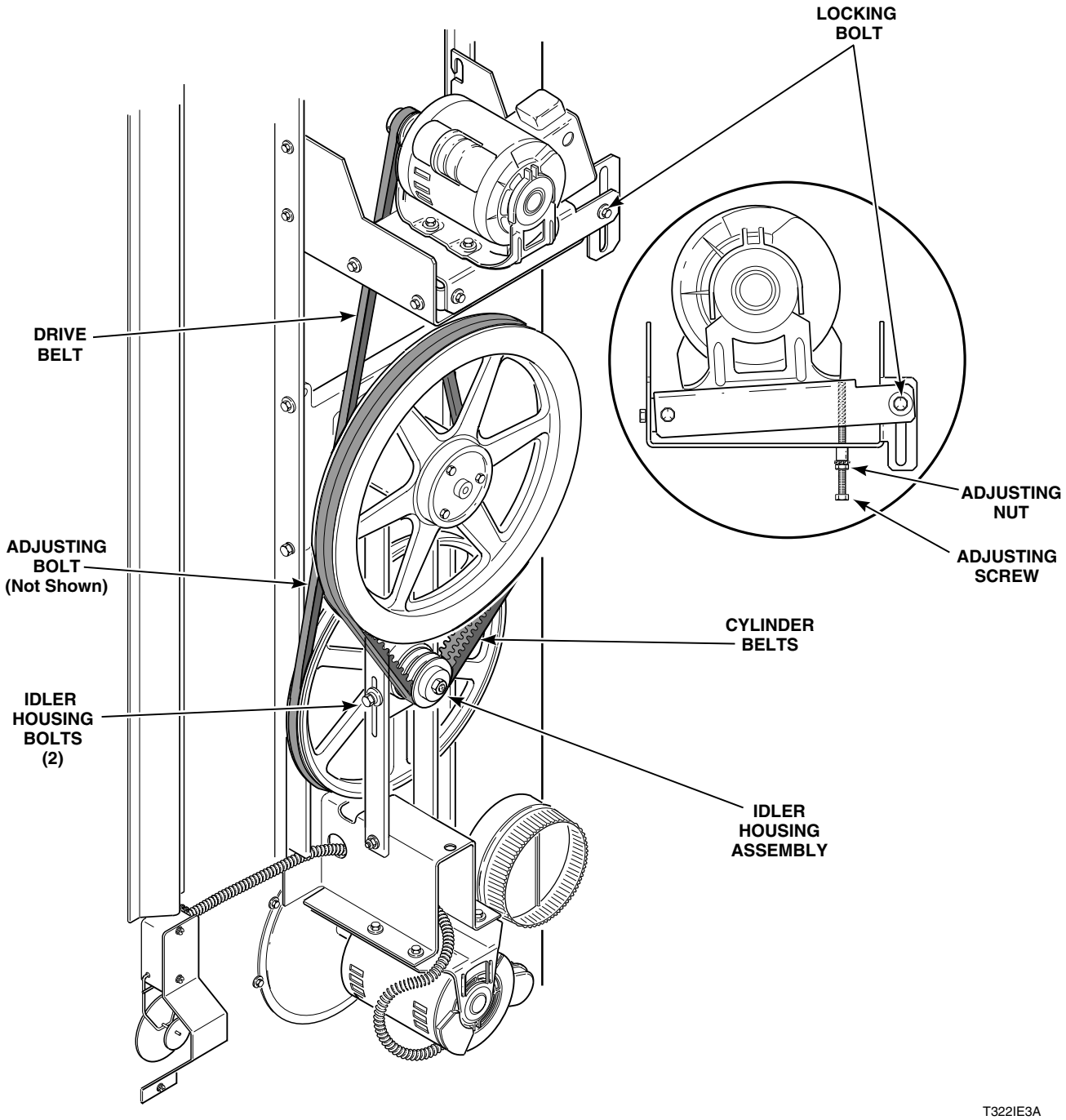

Figure 46

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

120. DRIVE CHAIN TENSION
Refer to *Figure 47*.

WARNING

To avoid bodily injury, disconnect power to tumbler before performing this operation. To find the proper tension, apply light thumb pressure midway between the cylinder sprocket and the idler sprocket, and adjust until the chain can be depressed approximately 1/2 inch (13 mm).

W279

IMPORTANT: After a tumbler has been in operation over an extended period of time, a "HIGH POINT" will develop on the cylinder drive sprocket from use and wear. Turn the sprocket manually with drive chain in place until this "high point" is at the top center. The "high point" can be found by noticing increased chain tension while slowly rotating the cylinder sprocket manually. The chain must be at the "high point" when making the adjustment. Refer to *Figure 47*.

Nonreversing Tumblers

a. Remove drive guard, *Paragraph 98*.
b. To adjust chain tension, loosen jam nut holding idler sprocket to housing.
c. Move idler sprocket left or right until proper chain tension is reached, then retighten the jam nut.
d. Check chain tension.

Reversing Tumblers

a. Remove drive guard, *Paragraph 98*.
b. To adjust chain tension, loosen nut on idler housing attaching bolt. Refer to *Figure 31*. Move entire idler housing assembly up or down in the guide rails to change tension.
c. When chain tension is correct, tighten idler housing attaching bolt. Hold idler housing firmly in position while tightening nut on attaching bolt.
d. Check chain tension after tightening nut on idler housing attaching bolt. Refer to *Figure 47*.

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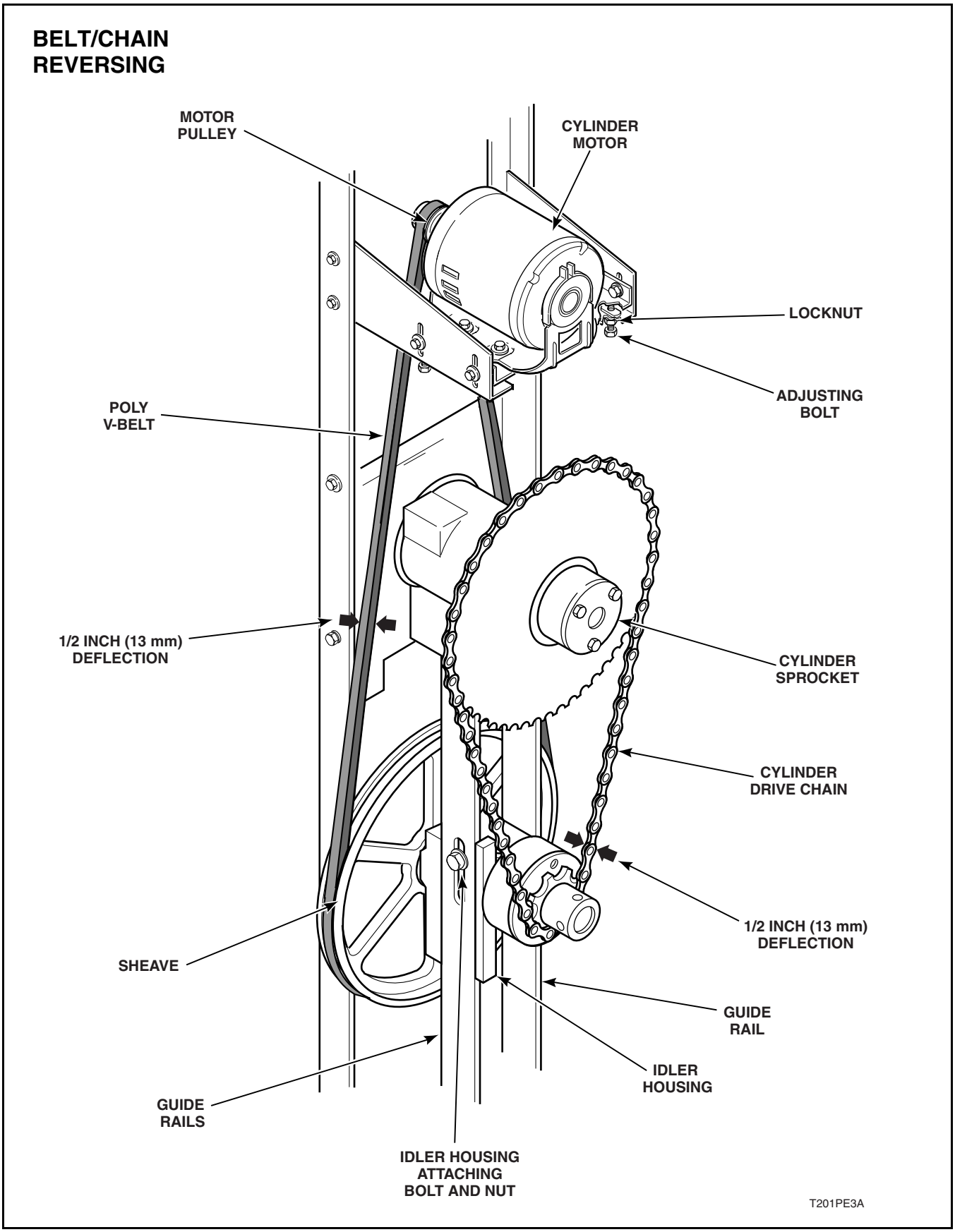

Figure 47

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the tumbler before servicing.**
- **Close gas shut-off valve to gas tumbler before servicing.**
- **Close steam valve to steam tumbler before servicing.**
- **Never start the tumbler with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the tumbler is properly grounded.**

W002

121. CYLINDER CLEARANCE

The clearance between the cylinder rim and front panel must be adjusted so the cylinder is centered within the front panel opening when the cylinder is fully loaded and is turning. However, the adjustment should be made when the cylinder is empty.

NOTE: If the cylinder is not properly adjusted, the cylinder rim will rub against the front panel.

a. Open loading door and check the gap between the center of the front panel top flange and the cylinder rim. Proper adjustment is when the gap is 7/16 inch (11 mm). Refer to *Figure 48*.
b. Remove chain guard.
c. Loosen the four trunnion housing bolts. Refer to *Figure 49*.
d. Loosen the locknuts on the trunnion housing adjusting bolts. Refer to *Figure 49*.
e. Turn the adjusting bolts in or out as necessary to obtain proper clearance between cylinder rim and front panel.

NOTE: Turning the adjusting bolts clockwise will raise the cylinder and turning them counter-clockwise will lower the cylinder. Turn both bolts evenly to adjust top and bottom clearance. Turn one or the other adjusting bolt in or out to adjust side clearance.

f. After the cylinder is properly adjusted, tighten the adjusting bolt locknuts and the four trunnion housing bolts.
g. Install the chain guard removed in step “b”.

NOTE: If adjusting the trunnion housing fails to correct the clearance, the problem is probably due to a worn trunnion shaft or defective bearings.

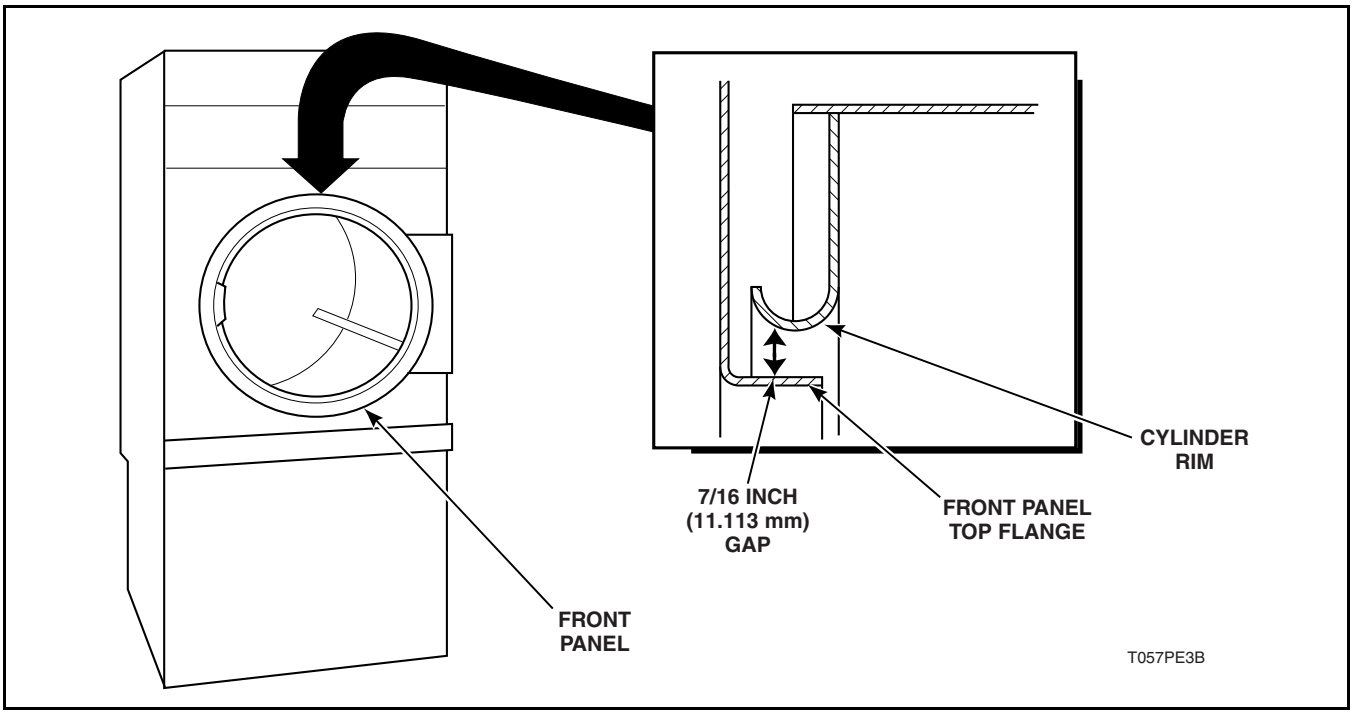

Figure 48

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BELT/CHAIN NONREVERSING

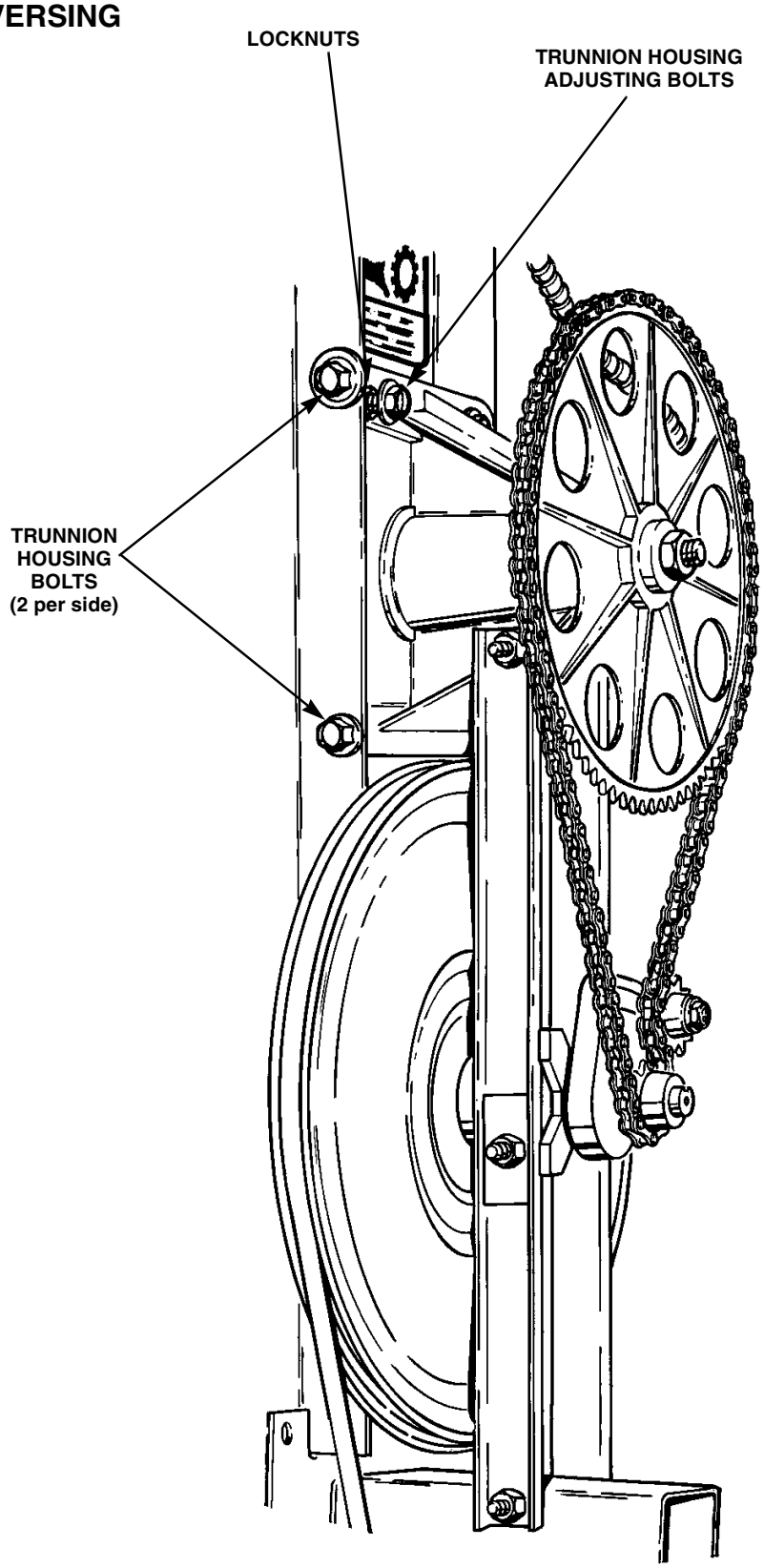

Figure 49

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